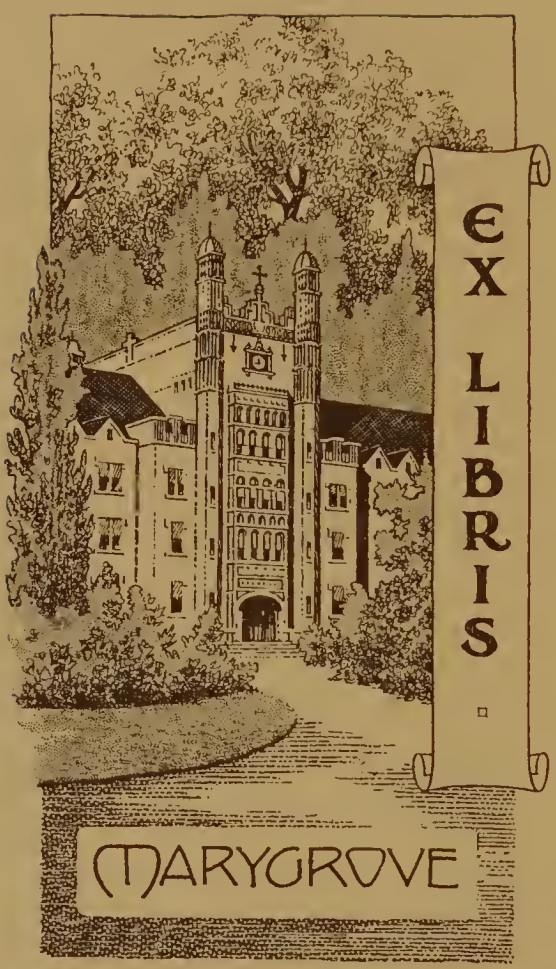
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MICHIGAN ACADEMY OF SCIENCE ARTS AND LETTERS

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CONTAINING PAPERS SUBMITTED AT THE ANNUAL MEETING IN 1929

(The papers in Botany and Zoölogy of the 1929 meeting appear in Volume XI.)

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PAPERS

OF THE

MICHIGAN ACADEMY OF SCIENCE ARTS AND LETTERS

EDITORS

EUGENE S. McCARTNEY
UNIVERSITY OF MICHIGAN

PETER OKKELBERG
UNIVERSITY OF MICHIGAN

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1930

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THE LABORS OF THE *DATOE:* PART I. AN ANNOTATED LIST OF RELIGIOUS, MAGICAL AND MEDICAL PRACTICES OF THE BATAK OF ASAHAN *

HARLEY HARRIS BARTLETT

INTRODUCTION

IN 1918 Bidin Si Rait Holboeng, a native of Silo Maradja, Asahan, drew up a list of the religious, magical and medical practices which in the last generation pertained to the office of *datoe* ("priest-doctor") in Silo Maradja and adjoining parts of Asahan, a region inhabited by the Batak group called from their land, Pardembanan, the land of *demban*, or *sirih*.

The manuscript begins *On ma soerat goran-goranan ni hadatoeon Batak* ("This is the writing of the names of matters pertaining to the Batak *datoe*"). It is a question whether *hadatoeon* might not be translated with sufficient precision as "magic," but since most of the works of the *datoe* are essentially religious, medical or instructional, although much magic enters into them, I have preferred a roundabout translation — matters pertaining to the *datoe*, or labors of the *datoe*. As a matter of fact the *datoe* always refers to all but the more trivial of his duties as *hordja*, "labors."

Bidin's manuscript is in Batak script, and therefore has no punctuation or word division. It is clearly written, however, and with no more mistakes than might be expected, the most frequent being the occasional omission of the sign *pangolat* which cancels the inherent vowel *a* of a character and enables a closed syllable to be written. Such obvious errors have been corrected in the

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transliteration. The emendation has extended to supplying a few omitted syllables, but no liberties whatever have been taken with the spelling, which is in general consistent with pronunciation in Asahan.

Bidin wrote largely from his own considerable fund of information, for he had been in training to succeed his father as *datoe*. During the listing of the labors of the *datoe*, however, he and the present writer were in touch with several other men, also contributors of manuscripts to the writer's collection, who made suggestions for Bidin's list. They were the three "great teachers" (*goeroe na bolon, goeroe jang bosar*) Datoe Silo Tonga, Datoe Dja Toelang and Datoe Malin, all of Silo Maradja, and the eight "lesser teachers" Dja Matim, Kodim, Maasen, Leman, Kasem, Sitaar, Dja Liman and Anggarain, also of Silo Maradja. In addition there were Datoe Boerdjoe of Boenoet (Pl. III), and the following not from Pardembanan, but from across the boundary in Si Baloengoen (officially Simĕloengoen, this spelling following Karo pronunciation): Datoe Sarmahadjim of Sa Roemah Tinggi and Toean Goenoeng of Goenoeng Mĕligas.

Of the informants who contributed to the list several have died and some have gone over to Islam, and are reticent about the days before they changed their names. During my second visit to Asahan, in 1927, I saw much of the former pagan Datoe Maasen, now the good Muslim Djaedim, and so fearful of his piety falling under suspicion that he hardly even wanted to carve for my collection a replica of an old pagan grave-post. Bidin, the compiler of the list of *hadatoeon*, has become a convert to Islam and is now a maker of hats instead of a *datoe*. He has lived for several years away from his own people, in the Malayanized part of Simĕloengoen bordering on Batoe Bara, and has assumed a new name. He is no longer interested in "*agama parbegoe*" ("ghost religion"). In 1918 he was remarkably well qualified as an informant, although only a youth of perhaps seventeen or eighteen at the time the manuscript was written (see Pls. I and II). His father was Toewan Dabolon, *datoe* in the time of Saoe Maradja, father of the present chief — a *datoe* who is always mentioned with respect. He trained his cleverest son, Bidin, to succeed him. Toewan

Dabolon's elder brother, Datoe Silo Tonga (see Pl. II), the eldest and perhaps most famous *datoe* of Asahan, is at present (1927) living at Poeloe Mandi. I have been indebted to this quaint and kindly old man for much information, given either directly or through Bidin. Datoe Silo Tonga wrote many of the large collection of invocations and other manuscripts which I collected in Sumatra. The father of Silo Tonga and Toewan Dabolon was Si Oemboe, reputed to have been a more powerful *datoe* than either of his sons. He was of the same *marga* (marriage sept), Si Rait Holboeng, as the Radja of Silo Maradja, and was chief *datoe* in the time of Radja Maloepoek, the grandfather of the present chief, Ria Maradja.

Datoe Boersok (Pls. XI, XII, XX, XXV, XXIX, XXX), an elderly man who has explained much of the manuscript during the past year (1927), was not formerly esteemed a great *datoe*, but is now the only one who regularly officiates in ceremonies at Silo Maradja. Until Datoe Silo Tonga went to live at Poeloe Mandi, Boersok was termed *datoe kissil* or *datoe na metmet* ("little *datoe*") and he still officiates only as assistant if Silo Tonga is present. His father was Si Soding *marga* Si Toroes, of Silo Maradja, and his mother a woman of *marga* Manoeroeng from Boentoe Pane, in the olden days the adjoining petty kingdom to Silo Maradja. (It is forbidden (*pantang*) for him to give her name.) He comes of a not unbroken line of lesser priest-doctors. His father was not a *datoe*. His grandfather, Si Oedjoeng Tahi ("concluder of deliberations") was a man of importance, and the two preceding generations were Si Tondi Hoeta ("soul of the village") and Si Toewan Bana, who came from Toba. Bidin's line was also descended from Toba ancestry, but was established in Pardembanan some generations earlier. The *hadatoeon*, or matters pertaining to these Pardembanan priest-doctors, may, therefore, be expected to conform in many respects with Toba tradition, although Simĕloengoen influences have been strong.

In some families the *hadatoeon* has been family tradition for generations, as in the case of Bidin. In the case of Boersok, whose father was not a *datoe*, the tradition was to a certain extent broken because he had to find a *goeroe* outside his own family. Boersok

will soon be in his second childhood. Even now it is not easy to keep his attention from wandering, and it was easier to get information from him by letting him talk spontaneously than by questioning him about specific matters. It is for this reason (since he was the most readily accessible willing informant in 1927) that many matters in the manuscript are not fully elucidated in the present publication.

It has proved impossible to make a concise translation which would be of any value. I therefore present the text item by item, as far as it is a mere enumeration (through Part I), with translation and notes for each item.

The translation leaves much to be desired. The writer makes no pretense to much knowledge of the Batak language and has sometimes had to be content with putting down what the informants said (in Malay) a phrase meant, without being able to see just how the words gave such a meaning. Despite Datoe Boersok's assistance, some labors of the *datoe* have had to remain mere names with no comment, or inadequate comment. When some of the bark manuscripts (*poestaha*) of the Batak shall have been adequately studied (we have now mere summaries [5, pp. 129–137] of the contents of a few) we may possibly know much more than at present concerning Batak magic and religion, as it was in former times. The present commentary will show what portions of the old system have been actively practiced down to the present, or at any rate survive in memory, in a single district.

Those who have made a study of Batak ceremonial in other districts will notice that certain things which are very important in Toba or Karoland, for instance, seem hardly to figure in Asahan. Thus it is notable that in this first part of Bidin's list the magic staff, so all-important to the Toba or Karo *datoe*, is not mentioned. The reason is that in Pardembanan (and also, the writer would assume, in neighboring Tano Djawa [1]) the possession of a *toenggal*

[1] The old incorrect reports of the absence of the magic staff in Siměloengoen, which caused expressions of doubt as to the accuracy of the observers, probably have the same explanation. Joustra (6, p. 147) says that in view of the reputation (among the Karo) of Timoerland (Siměloengoen) as the place from which the learning of the *goeroe* (*datoe*) passed northward, and that since the Toba Batak also know Si Baloengoen for its great and famous

panaloewan ("magic staff") had become the prerogative of a great chief, and such a staff was found only in the regalia of one of the petty kingdoms. There were originally only three *toenggal panaloewan* in lower Asahan, among the *kabosaran* ("regalia") of Boentoe Pane (in the possession of the present chief, who has, however, become Muslim), Silo Maradja (in the possession of the writer), and Bandar Poelo (long since disappeared, on account of the people having become Muslim). The *datoe* had nothing to do with the staff except in ceremonies of a public nature in which the *radja* himself was naturally chief participant, *soehoet na bona-bona*. Curiously enough, although the staff was in the actual custody of the *radja*, the invocations (*tabas*) which pertained to it remained with the *datoe*, showing that the *toenggal panaloewan* in Asahan, as elsewhere, had originally been *hadatoean* ("pertaining to the *datoe*") and only became *karadjaan* ("pertaining to the *radja*") after the three little kingdoms developed.

Formerly the *datoe* was a recognized dignitary in the little states and *kampongs* of the lowlands of the East Coast, in both Asahan and the Siměloengoen districts. The office was to a certain extent hereditary, but the inheritance depended, of course, upon a son of the *datoe* having served as a disciple of his father or of some other older *datoe* and having become acceptable to the *radja* and the people. A great *datoe* pertained to an independent district, such as Silo Maradja, Boentoe Pane, or Bandar Poelo, whereas the lesser *datoe*, of whom there were many, were located in the subsidiary villages. Many were related by blood to the *radja*, belonging either to the same sept or to the *hoela-hoela* sept, from which the ruling sept took wives. The social position and importance of the *datoe* were high. In dignity and authority he was second only to the *radja*, and was inseparably connected with the latter in countless details of social life before the old political and

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magicians, it is strange not only to find so little recorded about Timoer magic, but even to find the statement made that the magic staff is entirely lacking. He says it is safe to assume that whatever magical paraphernalia are found elsewhere are to be found in Siměloengoen also. The writer has seen no magic staff whatever in Siměloengoen, and is certain that in the region adjoining Asahan the individual *datoe* do not have them. However, we now know from Tideman (25, pp. 153, 164) that there are some in the district.

social system was shattered. The Sanskrit origin of the title by which the chief was known, *radja*, shows that the office was introduced during the period of Hindu influence. The *datoe* may be supposed to represent the earlier indigenous chieftainship, which was largely concerned with affairs of religion. Hindu influence established the *radja* in the social structure, displacing but not dispossessing the *datoe*.

In the languages of the Pacific extending to Fiji, as Kern (9, V, p. 65) has shown, the word *datoe* or its phonetic equivalent (*ratu*, *dato*) has the meaning king, chief, or priest. In some of the more remote islands *datu* designates the king or highest chief. In the islands nearer to the old Hindu sphere of influence, and subsequent Arabic influence, the term lingers for the priesthood (Batak; Sumba) or higher nobility (Java; Mindanao and Sulu), or has become a generally applicable title of respect (Malay).

Text, Translation and Notes

on ma soerat goran-goranan ni hadatoeon batak: This writing is the naming of the things that pertain to the *datoe* of the Batak.

si malang ate: (to make a defense (*pagar*) to prevent the spirit of a killed or injured enemy from entering one's body). In the wars of former days it was necessary to have a defense against possession by an injured spirit in the form of a properly carved figure, which was efficacious only in conjunction with appropriate *tabas*, or spoken incantations. The *pagar si malang ate* is now obsolete.

soendat margantoeng: (to make a defense against magic by) "the hinderer hanging upside down." The apparatus (*ramoean*) for counter-magic by hanging things consists of seven kinds of hanging things which have not been hung up by human agency, preferably those which may be supposed to have been suspended by spirits, such as broken branches, wilted leaves, hanging birds' nests, wasps' nests, objects left suspended on trees after a flood, curiously shaped aërial roots, hanging epiphtyes. These must be used with an image which hangs upside down (*pagar soendat margantoeng* [see Pl. XXIV]), the protective spirit of which is presented with sacred herbs (*roedang*) and a leaf of *sirih*. This

magic also requires incantations (*tabas*). (See Tideman, 25, p. 165.) It is used to nullify the magic of an enemy.

oehoem sorik sorgah: (to predict) "fate" — (coming to) "grief" (or rising to) "high estate."

pandijam baris: "the silencing of footsteps." The magic of obliterating one's path so that he may not be followed by enemies or by spirits which cause sickness or trouble. One procedure, if a person has had to pass a house where there is illness and suspects that evil spirits may follow him, is to find a place where a column of ants crosses the path, to invoke the aid of the ants, and to place seven of them in a joint of bamboo or other receptacle. When home is reached the bamboo containing the ants is buried in front of the house. An invocation is addressed to the earth spirits (*boraspati ni tano*), asking them to receive the ants which are to be allowed to guard the house by attacking the evil spirits. The invocation of the earth spirits must be accompanied by appropriate offerings, which may consist of an egg and *sirih*.

si oelang-oelang: (to make the *pagar si oelang-oelang*) "the restrainer" (which prevents one's enemy from carrying out evil plans).

sirang-sirang: (the magic for things that resist) "separation." [2] It is similar to the magic of hanging things and is used in similar circumstances, but the apparatus consists of seven things that cannot be cleft, as for example, a knot that a wood chopper has been unable to split, coins melted together from the ashes of a burned house, double fruits, a clam shell that has broken from the force used to open it, but is uninjured at the hinge.

tinggir mardiri hata boedak: "to take to oneself the speech of youth." A person who is about to run the risk of going among strangers practices this magic in order that he may not give offense, and to the end that his journeying may cause no more suspicion of his motives than would the wandering of a child. The magical apparatus, *ramoean*, consists of *sirih* leaves and pepper grains, *lada*. An elderly person who has taken upon himself the speech

[2] In Simĕloengoen, according to Tideman (25, p. 165), *sirang-sirang* is a kind of magic, accompanied by incantations, which has the special function of destroying the good understanding between lovers, or between married persons.

(manners) of youth is polite and humble, not asserting his opinions. A young person is silent except when addressed, and then replies in baby talk, to signify that if he should unintentionally lapse from the best manners it is to be looked upon as the fault of a child and overlooked. The spoken invocation of the one who assumes the speech of youth is as follows:

oë radja adam oë naidin-idin radja adam nama abangkoe sori mohalam nama adekkoe adek maradek abang marabang na mardonganhon si moe timan ase hoepanggil badar setan boeang ni nandjorgoet di tapijan omas ni hoeta raja bolon ni toewan hoeta raja bolon lagija datang lagija toeroen karana akoe mamake tinggir mardiri borkat koboel ja ma toewankoe ja ma djoengdjoengankoe borkat laha illalah ja hoe hoe hoe hoe hoe hoe hoe. "Hail King Adam, hail thou whose pardon I ask! King Adam is the name of my elder brother. Sori Mohalam is the name of my younger brother. Younger brother, be a younger brother, elder brother, be an elder brother to him who befriends the one whom you call by his cradle name. Let me call upon Satan to witness the throwing away of that which is offensive at the golden bathing place of the great chief city of the lord of the great chief city, that I may come again, that I may return again. Because I have undertaken to adopt the manners of youth grant the blessing of invulnerability oh my lord, oh my great protector! The blessing of God upon me, me, me, me, me, me, me!"

This invocation is obviously derived from Malay sources. The translation may perhaps be open to question in one or two points, but it gives the idea correctly.

parboenga-boengaon: "the wearing of flowers" (in the hair). One of the kinds of *dorma* (*dorma* is explained later), a "magic" confined to children and young people. The *datoe*'s only connection with it is to advise the order in which the flowers are to be worn, for the kinds are changed daily with attention to the colors propitious for the days. The flowers are intended to attract the friendship or love of a particular person, and are worn by both boys and girls.

parbadja-badjaon: "the blackening" (of the teeth) "with *badja*" (soot caught on a cold, greasy knife blade from a smoky flame, mixed before use with other ingredients). The teeth are

prepared for the *badja* by roughening them. The process is very painful and the teeth are badly injured. The *datoe* recites *tabas* which is expected to lessen the pain. The ceremony formerly took place before marriage, but is falling into disuse.

pargiowangan: "ornamenting of the teeth" (with gold, *soeasa* (an alloy of gold and copper), silver, or even with little plugs of wood). Holes are bored in the enamel of the teeth, geometrically arranged, and the gold foil or other material is pounded in. The custom has recently fallen into disuse, and the older people have so generally lost the teeth that were operated upon that it is unusual to see an example of *pargiowangan.*

parsoentil-soentilon: (the medication of the teeth with *soentil,* a powdered mixture of tobacco with other constituents which is packed tightly around the gums outside the teeth after the operations of *parbadjaon* and *pargiowangan*). *Soentil* is also used for toothache. It is applied in much the same way that the negroes of the southern United States use snuff. (In Malay the cognate word *sĕntil* means a quid of tobacco stuck in the mouth so that it is partly in and partly out.)

parpoeran-poeranon: "partaking of *sirih.*" One of the kinds of *dorma.* A ceremonial betel-chewing [3] before taking a journey, going into the jungle to gather wild products, or engaging in other important projects. There are formulae to be recited by the *datoe* who also chews the *poeran* and invites special spirits to participate. The quid for chewing is made of a *sirih* leaf, a piece of half-ripe *pinang* nut (*demban martomoerak*), a little *gambir,* one pepper grain, and a little lime. The red saliva is rubbed by each participant across the forehead, as a sign to spirits and strangers that a propitiation ceremony has been performed. It is believed that, even if events do not fall out well after the ceremony, they would have gone worse had it been omitted. Spirits and enemies must be at least a little more considerate because of its observance.

[3] Betel-chewing ceremonies of a different kind are often held in behalf of ill persons, especially children. The friends and relatives gather about, spit blood-red *sirih* spittle on the patient, and rub it until it dries. The abdomen of a sick child is often caked with dried *sirih* spittle. In Habinsaran the writer had the experience of seeing the Batak spit *sirih* juice into the eyes of sufferers from trachoma, whom he had just treated with mercurochrome.

The young people of marriageable age never omit *parpoeran-poeranon* during courtship. If any of the ancestral spirits of the young couple should happen not to be friendly with one another they are reconciled to the match by the ceremony. In order that the ancestral spirits may be pleased by the ceremony and recognize the identity of the participants, the *sirih* set should be an heirloom. If any of the ancestors were chiefs, the set should be *karadjaan* ("royal"). A full royal set (*parpoeranan karadjaan*) consists of a nicely woven pandanus bag (*badjoet*), closed by a braided cord or a silver chain (*tali badjoet*), a silver lime-box (*parhapoeran*), which is attached to its lid by a silver chain (*somboel-somboel*) with flat triangular end-links (*alap-alap*), a silver box for *gambir* (*pargambiran*) and a silver box for the betel nut (*pardembanan*). Such a set is used away from home. At the *radja*'s house the *badjoet* will be replaced by a brass dish for the *sirih* leaves, and there may be other accessories such as a tobacco box and a spittoon.

pargotong-gotongon: (a ceremony for determining the truthfulness of accusations (?)).

parhoendoel-hoendoelon: (the ceremony of) "sitting in consultation" (with the *datoe* to decide upon a course of action).

parkasih si radja ihat manisija: "to worship the king-binder-of-all-mankind."

parkasih ni si malang ate: "the worship of (the spirit) adverse-liver."

parkasih sa moela djadi: "the worship of (the spirit) beginning-of-existence." Not to be confused with the obsolete worship of "the great creator," *moela djadi na bolon.*

parlangkahon: (the prediction of where one's steps will lead, i.e., how one's life will end).

pardjoempang-djoempangon: (the prediction of) "what will be encountered."

si boengkar hoeboe: (to consult) "the destroyer of defenses," a circular diagram with eight sectors from which the *datoe* determined the auspicious times for attacking the enemy's fortifications.

soesa saloesoe: (the magic of foretelling the time of) "trouble" (and of) "relief from trouble." It is used particularly to tell when

a child will be born, and whether or not the outcome will be favorable. The *tabas*, or formula recited by the *datoe*, is believed to lose its efficacy if ever written down, and therefore has to be passed from the *datoe* to his disciple by word of mouth.[4]

pangori tapijan so maroembe: (the initiation of) "one who goes to the water's edge at the bathing place not as a stranger," i.e., one who may remove all clothing at the bathing place without incurring the displeasure of the water spirit, Nabi Sa Ilir.[5] Soon after the birth of a child there takes place at the bathing place (*tapian*) the first of a series of ceremonial introductions to various spirits, to whom offerings of sacred herbs (*roedang*) are made in the belief that the child will then be recognized by each spirit as belonging to the locality, and will be pardoned if he does things that in a stranger would be deemed improper. A person will bathe naked at his own ancestral bathing place, where he was presented as an infant to the water spirit or at a new bathing place where the *datoe* has made, in his behalf, proper propitiatory prayers and offerings. Otherwise he will bathe in a garment so as not to give offense to the spirits. The literal translation of *so maroembe* is "not acting as a stranger," but if applied to a child it means "naked" or "unashamed." Since at the bathing-place ceremony the child is called by name as So-and-so, the son or daughter of So-and-so, the ceremony is not dissimilar to a christening.[6] The

[4] Fischer (5, pp. 133, 136), however, in his summary of the contents of a number of bark books (*poestaha*) lists *poda ni tabas na salusu* ("directions for the formula for facilitating birth") (Leiden Mus. 1239/327) and *poda ni hatahata ni salusu* ("Vorschrift das Gebähren zu erleichtern") (Leiden Mus. 340/103 III).

[5] Nabi Sa Ilir is the prophet Khailir of the peninsular Malays — Khaithir or Khizr, "lord of water." According to Skeat (24, p. 199) "Khizr is often confounded with Elias. He discovered and drank of the fountain of life (whence his connection with water) and will consequently not die until the last trump." It is a safe surmise that the Batak made supplications to spirits of earth and water before they ever adopted perverted Arabic names for them. To a Batak, Nabi Sa Ilir means literally "spirit of the running water." The Batak have also adopted the name Nabi Noh ("prophet Noah") to whom the Malays say Allah gave jurisdiction over the land. He is identified with a Batak earth spirit.

[6] In Perak there is a somewhat similar Malay ceremony of introducing a child at the bathing place. Wilkinson (32, p. 4) describes it as essentially a purification by rice flour (*tepong tawar*, "purifying flour"). At the Batak

ceremony is one of several which are known as *marroedang*, i.e., the offering and wearing of sacred herbs.

tiham toedjoe parmoelaan hata: "directed stabs the beginning of an affair" (literally "of speech"). In order to make a success of any important undertaking the *datoe* may employ this powerful magic. It consists in summoning adverse influences (spirits) into offerings which are of the nature of baits. One of the accessories (*ramoean*) is *boewa kamiri*, the candle nut. By virtue of spells (*tabas*) recited by the *datoe* he is enabled to destroy the evil by thrusts of a dagger. If one's intentions are good, any offense that his words or actions may cause is to be attributed to malevolent spirits, which should be terrified or destroyed by the magic of *tiham toedjoe* at the outset of any important project. If one's intentions are evil, the magic of *tiham toedjoe* is still efficacious, and will enable one to harm good spirits that oppose one. *Tiham toedjoe* is used to "purify" an inclosure where it is desired to hold important ceremonial dances, feasts, and the like. The offerings into which the evil spirits are enticed for stabbing are of various sorts, but generally include eggs.[7]

mangoehoem: "to attend to the fines." Fines were paid for offenses against persons or spirits. If a spirit had been offended slightly, an ordinary offering was made by the *datoe* in behalf of the offender. If the offense was so serious that the spirit might be expected to require the death of the offender, the *datoe* made offering of a substitute, in some cases using magic to make the

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ceremony the *datoe* likewise purifies the persons assembled and also the locality by throwing a purifier (*tambar*) consisting of whole grains of "three colors of rice — white, red, and black" (*boras toloe roepa, boras na lopak, boras na gerger, boras na birong*).

[7] According to Wilkinson (31, p. 197) in the Malay Peninsula *tuju* (= *toedjoe*) is "a form of sorcery in which the attention of evil spirits is directed toward any person so that they may bring him to an untimely end." He quotes a passage from the Hikayat Abdullah "*menuju orang sampai mati*," to *tuju* a man to death, indicating that *tuju* is used to kill a human opponent. This Malay "magic of pointing-out" is probably not closely connected with the Batak magic of "directed stabs." That the Malays have customs similar to those of the Batak is, however, shown by an account in Skeat's *Malay Magic* (24, p. 442) of a ceremony in Selangor in which the magician (*pawang*) stabbed bouquets in which it was supposed that hostile spirits might be lurking. This procedure agrees exactly with *tiham toedjoe* in Asahan.

spirit believe that no substitution had taken place. The commonest substitute was the *parsili*, which was not always offered strictly as a fine (*oehoem*), since in some cases a spirit which had not been offended would maliciously torment a man, and offerings would nevertheless be necessary.

hata posah[8] **porang:** (to speak) "the words to break the battle." The full name of this magic is *hata posah soso porang moelija*, "the words to break the glorious line of battle." Tideman (25, p. 165) lists *siposah porang* as one of the important kinds of magic in Siměloengoen, and says that its object is to cause division and discord among the enemy.

hata na toloe hata na sada: (the magic of) "three words" (and) "one word." The same magic is also said to be known as *hata na sada poda na doewa*, "one word, two instructions." It is an invocation taught by the *datoe* and recited to himself by one who is in danger or perplexity. It summons the four spiritual attendants whose names betray that this magic is a borrowing from the Malay.[9] The four are Kiraman, whose place is in front, Katibin, at the right, Aboe Bokar, at the left, and Sikdik, behind. These guard the soul. (*"Ini mendjaga tondi."*) The conception of spiritual guardians is aboriginal with the Batak (see the notes on the *djinoedjoeng*) and is therefore easily moulded into a quasi-Muhammadan form.

bilang bintang marima ka poetoesan: "to call upon the stars to be present at the destruction." An invocation used before an attack upon the enemy.[10]

[8] *posah* is interpreted as cognate with Malay *pĕtjah*, "to break"; cf. Malay *pĕtjah pĕrang*, "to break the battle."

[9] Winstedt (34, p. 31) states that the Malay is protected from devils and jinn by two out of four attendant angels, who change guard at sunrise and sunset. Recorders of his good and evil deeds, they are termed Kiraman Katibin, the Noble Writers; good deeds are written down by the angel on his right, bad by the angel on his left. Here we have an explanation of the misunderstood names of two of the four guardians. Aboe Bokar, the third, is obviously Abu Bekr, the first Muhammadan caliph, whose appellation El Siddik, "the Faithful," has given the name of the fourth, Sikdik. Thus two of the names are words of a dismembered phrase that should properly apply to all four, and the two other names belong to one individual, Abu Bekr El Siddik.

[10] Warneck (26, p. 30) says that *pintor bilang* (or just *bilang*) is shouted at the beginning of a combat as a prayer in which God is asked to weigh

gorak ati hagoit: "the warning heart beat." The interpretation of irregularities in the heart beat, which are believed to give warning of impending misfortune.[11] One skilled in this *ilmoe* ("science") believes that it enables him to read the character of a stranger.

parroemahan manoto-noto: "to lay out a new village site" (literally, "place for houses"). This important duty is but seldom performed. It consists in laying out the land in accordance with tradition (i.e., in accordance with the wishes of the ancestors), in placing the radja's house in the most convenient and propitious location, in determining the axis of the *alaman* (area between the two rows of houses), in choosing the site of the *tapijan* ("bathing place"), and similar things.

manantik manoerboe: (to determine the auspicious time for) "clearing (and) burning." At the site of a new village, house or field the *datoe* must consult his magic diagrams and watch for good omens in order to start the work of clearing away the forest at a lucky time.

masoek marhordja-hordja: "to enter upon the ceremony." A labor (*hordja*) such as making a new village site is ceremonial from start to finish. After the propitious time has been found out, there is a sacrificial feast with offerings to the local wild spirits and the spirits of the ancestors, whose permission is asked to occupy the site which the *datoe* has laid out.

mangoeras pangoerason: "to purify according to the ceremonial procedure for purification." This ceremony is held toward the beginning of a new year, either in the eleventh month (*boelan li*) or the twelfth (*boelan hoeroeng*).[12] Its object is to expel evil

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carefully on whose side is the right; for according to (Toba) Batak ideas every combat is a judgment of God, since by the outcome of the strife God gives knowledge as to which of the parties was in the right. (Does Warneck refer to the Muslim and Christian conception of God? Presumably so.)

[11] In Toba *porgorahan* is an especially quick pulse beat that is taken as a bad sign; if one has entered upon an undertaking and feels such a warning pulse beat he turns back; the word has been accepted for "conscience," but had originally no moral but only a superstitious significance (Warneck, 26, p. 77, s.v. *gorak*).

[12] The first ten months are known as the first month, the second, and so forth (*boelan si pahasada, si pahadoewa, si pahatoloe, si pahaopat, si pahalima*

spirits from the house and from the members of the household. It is performed as follows: The *datoe* cuts a transverse piece out of the middle of a large banana leaf, rather longer than wide, and pares down the midvein level with the blade. On this "altar" to the household spirits are arranged three kinds of sacred herbs, two or four *sirih* leaves, rice of three colors, two balls of rice dough, twice five streaks of coconut oil, applied with the fingers, and twice five streaks of lamp-black. (The arrangement of the offerings is shown in Plate XXII, and the names of the items are given in the explanation of the plate.) The *datoe* now prepares the evil-expelling purifying drink.[13] He cuts two limes (*limo moekoer*) in a magic-working manner, one by a continuous spiral cut known as "old-time magic cut," *potong sormah*[14] *toewa*, so that it elongates like a spiral spring, the other by slicing longitudinally nearly to the base into eight equal radial segments, in the manner known as "the eight-region cut," *potong desa nawaloe*. Discs of yellow tur-

si pahaonom, si pahapitoe, si pahawaloe, si pahasija, si pahasapoeloe). According to Meerwaldt (12, p. 92), the first Batak month is about July, but the Pardembanan group appear to have no fixed point for beginning. They seem to reckon the month of rice harvest as the tenth month and to perform the purification ceremonies in the two months following. Harvest in late December and early January brings the purification in January or February. I saw it on January 15 at Silo Maradja.

[13] In the details of the *mangoeras* ceremony the reader will find close parallelism to the chief rites of the modern Batak religions *parmalim* and *pargoedamdam*. The former is chiefly pagan, but contains some Muslim and Catholic elements, notably the worship of Mary, supposed to have been picked up by the founder of the religion, Goeroe Somalaing, from the Italian geographer and ethnologist Modigliani, whom he accompanied as guide from Toba down over the mountains to the low country of Asahan (1889-91). Goeroe Somalaing, of whom Modigliani (15, p. 86, Tav. XIV) gives an interesting picture, was a *datoe* closely associated with the famous Si Singa Mangaradja, priest-king and living god of the Batak. *Parmalim* took hold chiefly in the mountainous back-country of Asahan, but spread to Simĕloengoen. Tideman (25, pp. 165–177) gives a sympathetic account of it. Finally it developed into *pargoedamdam*, the worship of Si Singa Mangaradja, which spread like wild-fire over all the Batak lands and in 1918 alarmed many of the Dutch officials, who saw it as a political menace on account of its unifying influence on the different groups of Batak. In connection with the *mangoeras* ceremony the account by Neumann (19) of *pargoedamdam* among the Karo is especially interesting.

[14] A cognate of the word *sormah* would seem to be the rare Malay word *chĕrĕmak* (Wilkinson 31, p. 251).

meric, *hoenik*, are sliced from a cylindrical piece of rhizome and inserted into slits at the apex of each segment of the "eight-region" lime, and into slits in definite positions in the spirally cut lime. The two fruits are now called "the two kinds of enchanted limes," *limo disilipi doewa roepa.* They are placed in a large bowl, and the *datoe* proceeds to make the next piece of apparatus, "the island to return home to," *poeloe poelangan.* He makes an oval roll of Xanthium (cockle-bur) leaves, ties it tightly, and then cuts it neatly across so that the part which he uses looks like half an egg. In the summit of it he places a little sprig of Zanthium inflorescence. The magical significance of this plant becomes obvious from its name, "the return hinderer," *si balik hoenda.* The *datoe* places the "island" in the center of the bowl with the two magical limes, and pours an appropriate amount of water in to make a sea. Three more limes are squeezed into the water, their skins being discarded. The *datoe* now fortifies his spirit by eating a bowl of rice and red pepper (his fee), while in the meantime the woman of the household prepares *sirih* quids for the next part of the ceremony, in which the *datoe* chews *sirih* with the spirit of his *goeroe*, the elder *datoe* from whom he received his instruction in magic. Two old Chinese porcelain plates, *pinggan*, which the *goeroe* himself had used during his lifetime for the same ceremonies (only old possessions which have been handed down, known as *poesaka*, may be used for the ceremonies in case ancestral spirits are to be invoked, for the latter do not recognize the right of anyone who does not possess *poesaka* to call upon them) are now brought out. On each are placed two *sirih* quids ready for chewing, called ceremonially "the to-be-limed of the plates," *napoeran ni pinggan.* The old *goeroe* had no teeth when he died, and so the betel nut in his quids has been carefully pounded in the tubular brass apparatus (also an heirloom, *poesaka*) known as *toetoe gobak* ("pestle-mortar"). Since the spirit likes to chew his *sirih* very privately, his plate is covered with a white cloth, on top of which is placed a rolled braid of coarse grass leaves, *boeloeng ni padang.* Now the banana leaf is placed on the floor directly in front of the door, with a lamp at one side and one of the clay censers (*pabaraan*) made in Batoe Bara at the other, ashes and live coals from the fireplace having

been put in the censer. Gum benzoin (*kamoenjan*) is dropped on the coals, and the two old plates containing the *sirih* are fumigated in the fragrant white smoke, while the *datoe* pronounces an invocation to the *goeroe*, bidding him be present and assist his children to drive out evil spirits. After the fumigation of the plates, the householder asks whether the visitor has arrived, and the *datoe* answers *olo*, "yes." Then he covers his head with a white cloth and sits in an attitude of prayer with bowed head and his palms pressed tightly together before his face. The invocation is continued. After a pause the householder asks whether the visitor will assist at the purification. The answer is *olo*, "yes," as before. The *datoe* removes the prayer cloth, stirs the censer, adds fresh incense, and as the smoke arises he gazes intently into the bowl and stirs the very surface of the liquid with the point of a knife. He then chews his two *sirih* quids with deliberation and spits the red saliva at the center of the banana leaf "altar," removing and replacing the bowl each time he spits. At the same time the spirit of the *goeroe* is believed to be partaking of his *sirih*. In the meantime the woman of the household prepares two more quids, one of which is tucked under the covering on the plate of the *goeroe*, and the other placed on the plate of the *datoe*. These are provided in order that the householder also may go through the ceremony of chewing *sirih* with the *goeroe*, which he does sitting down beside the *datoe*. He also spits under the bowl, which is lifted for him by the *datoe*. The bundle of grass leaves from the *goeroe*'s plate is now dipped into the bowl and placed upon the banana leaf. The *datoe* sets aside the two plates, and again gazes intently into the bowl. At the end of his long contemplation he cuts a strip of banana leaf so that by a few simple folds it is made into a ladle. He dips out of the bowl three mouthfuls of the lime juice and swallows them. Then he takes another ladleful into his mouth, but swallows none of it. Instead he goes to the door and blows it out in the form of spray, reciting as he stands in the door an admonition to all evil spirits to be gone. In this part of the ceremony he is followed without variation first by the housewife and then by her husband. A variation is introduced when the young son participates; he is required to swallow three and blow seven. The daughter, a

young girl, swallows three and blows two. The *datoe*'s little daughter swallows three and blows three. The varying numbers are determined by the *datoe*'s contemplation of the surface of the liquid, in a manner which he does not explain, but the decision depends upon the *goeroe*. At the end of this phase of the ceremony the house in general, the house-ladder, the path, the garden, the space beneath the house, the chicken roosts, the several sleeping places in the house, the hearth, the hearth-stones, the drying place above the fireplace, and the cooking pots have all been mentioned in the speeches of the *datoe*. Now follows the personal purification (also accompanied by invocations, *tabas*) in which each person present receives some of the lime water and rubs it vigorously on head, body and limbs. The *datoe* now takes the bowl containing a residue of the liquid, the island and the enchanted limes, to a place made known to him by the *goeroe*, during the contemplation of the bowl, and throws away the contents. The ceremony is brought to an end by the *datoe* taking from his hair the bouquet of three kinds of sacred herbs which he has worn throughout, placing it upon the banana leaf "altar" with the other offerings, and doing the whole up into a neat bundle, which is tied up and hung above the door. The bundle is known as the purifying protector, *pagar mangoeras*, and protects the house against any of the evil spirits who may, in spite of the *datoe*'s magic, find their way back. The purification ceremony is generally performed at night if the *datoe* can arrange to be present, as he generally can, for in these days of defection from the good old ways he is no longer overburdened by calls for his professional services. From the form of the ceremony and the invocations it appears that the friendly household spirits participate in the purification. This is chiefly indicated by the fact that one of the offerings on the banana leaf, done up into the *pagar mangoeras*, is an asperging device (*boeloeng ni padang*) together with lime juice, which the good spirits may use against the evil. The evil spirits are said to be afraid of the *pagar mangoeras*.

manomba-nomba: "to pray" (to the spirits with head bowed and the palms of the hands pressed together before the face). The act of praying is called *somba*, and a sacred or haunted place,

where *somba* is necessary, is called *sombaon*. The spirit living in such a place is also called *sombaon*.

mamele parsimangotan: "to give a sacrificial feast at the graves of the ancestors." Only those ancestral spirits are called *simangot* that retain human personality and an interest in their descendants. (See the notes on *tondi*, "soul.")

mambere sinoemba: "to make a sacrifice to the spirit of the forest." This ceremony takes place when a person has been killed by a tiger or a poisonous reptile. Either event indicates the dissatisfaction of a *sinoemba* or his wife with the treatment he or she has received, and indicates the necessity of the sacrifice. The offerings are a white he-goat and a red cock, known as *kambing manoek na hahoel ni sinoemba* ("goat and fowl bespoken of the forest spirit"), a complete set of the sacred herbs, glutinous rice cooked to brownness with pounded coconut and coconut milk in joints of bamboo (*lomang*), dough made of white rice flour (*itak si porah*), and eggs. Every forest, mountain, hill, or plain has its own *sinoemba;* the Batak say that there are *sinoemba* by the thousand (*adongpe riboe-riboe sinoemba*). The evil spirit of destructive winds is called *sinoemba alogo*.

mambere boroe sanijang[15] **naga:** "to make a sacrifice to Most Sacred Dame Serpent" (female spirit of the waters, and the wife of a *sinoemba*, the forest spirit). Her special offering is a white hen, which she always receives at the sacrifice to *sinoemba*. The two ceremonies are ordinarily combined.

marpimanggalang-galangngi:[16] "to be generous hosts" (to the

[15] Batak *sanijang* seems to be the equivalent of Malay *sangjang*, and is so translated.

[16] From the word base *galang*, by reduplication, composition with the prefix *pang*, and further composition with an infix which by phonetic modification has become *im*, the verbal formative *mar*, and the suffix *-i*. The word base persists in the simpler word *panggalangan*, a place which has become sacred and auspicious for prayer by the great ceremonies to the gods in past generations. Such places are now largely in territory that has become Muslim or occupied by plantations, and have become holy places to the non-pagan Malay and the Javanese. They are known as *kĕramat*. A famous *panggalangan* which has become *kĕramat*, but is still resorted to by pagans as well as Muslims, is located in the Tanah Djawa district of Simĕloengoen near Pĕrdagangan.

gods). This, the greatest of all the religious ceremonies, has not been performed during the last generation, since the chiefs have been too impoverished to carry it out. It was a sacrificial feast that lasted three days and three nights. In the preliminaries, all the ancestral spirits and lesser divinities were invoked, and then, if the auspices were favorable, men and spirits together joined in the invocation and entertainment of the great gods, *debata na bolon*. It was an expensive, serious and dangerous undertaking, since the slightest errors in the ritual or the offerings might incur the anger of the gods. The ceremony will never be revived, because the *datoe* who remain have not had the necessary experience to carry it out and the chiefs are too poor.

mambere pandaongan: "to make the offerings at the hanging altar" (the eating place of the *djinoedjoeng*). The *djinoedjoeng* is an advisory spirit which is sent to each person by the gods or deified ancestors in case he wishes it and makes appropriate sacrifices and prayers. If it does not wish to come it may be induced to do so if one dances and drums after offering the sacred herbs (*roedang*) and food. One then goes into a state of ecstasy, the *djinoedjoeng* enters him, and advises him regarding the matters which concern him. It is said that a woman is more receptive to her *djinoedjoeng* than a man, and comes to be spontaneously guided by it, but that a man is entered with greater difficulty and generally does not want the bother of having a *djinoedjoeng* at all. At Silo Maradja it is said that there are as many *djinoedjoeng* as there are persons alive, and that they live until they are called at four sacred mountains. The advisory spirits are said to belong to four "nations" (*bangsa*), each of which is affiliated with certain of the marriage septs (*marga*) into which the people are divided. The "nations" and the associated septs are as follows: (1) Djinoedjoeng Soeroengan to *marga* Si Rait, *marga* Si Toroes, *marga* Si Boeea; (2) Djinoedjoeng Si Manoek-manoek to *marga* Si Naga and *marga* Si Manoeroeng: (3) Djinoedjoeng Sori to *marga* Si Margolang, *marga* Si Damanik, and *marga* Si Boetar-boetar; (4) Djinoedjoeng Sagala to *marga* Si Toppoel, *marga* Si Agihen, and *marga* Si Marpaoem (= Si Marpaoeng). The *djinoedjoeng* is classified as a *begoe*. It is invisible, but "is like a bird." After the

death of the person to whom it pertains it returns directly to the deified ancestors (*padjoe-padjoean*) or gods (*debata*) who sent it. It is an intermediary between man and the gods, including among the gods the deified ancestors. It is not one of the seven souls (*tondi*) which are essential to the health and well-being of the individual, but is external to him except when it councils with him. "Its place is above." If what he is about to do will cause the displeasure of the ancestors and gods it tells him so. It therefore corresponds in a way to the conscience.[17] It upholds traditions. If offerings are made to it, and its advice is heeded, it is content to remain near a person, "but it is a great bother to care for it." The *djinoedjoeng* of a man likes an offering of a red cock, that of a woman a white hen. Both like to have incense burned for them, either gum benzoin (*kamoenjan*), or preferably, *dahoep*, which contains *roedang toba* (*Ocimum sanctum*). This is burned in a *parasapan* or *pardahoepan*. Other offerings to both are rice flour, coconut oil, *roedang hare-hare* (*Polypodium longissimum*), *roedang hatoenggal* (*Hibiscus rosa-sinensis*), *roedang na gerger* (*Celosia argentea*) and *roedang toba* (*Ocimum sanctum*). Offerings to the *djinoedjoeng* should properly be placed on a hanging platform or tray which is suspended from the roof-beam by a rope. This is the *pandaongan* [18] (Pl. XX, Fig. 3). It is ordinarily drawn up close

[17] In this connection see the discussion under *begoe djinoedjoeng*.

[18] I have seen the *pandaongan* only in Asahan. It seems not to be referred to in the literature under this exact name, but must be associable with the offering place known in the Pane-Bila region as *daoeng-daoengan*. The latter, according to Neumann (16, III, p. 287), is used only for offerings to the gods and the half-gods, a distinct offering place known as the *pangoembari* being used for the offerings to ghosts of dead relatives. The words *pandaongan* and *daoeng-daoengan* are probably derived from *daon* or *daoen*, "leaf," since the essential offerings are the sacred herbs. However, the Toba offerings known as *daoeng*, which are offered to household and family gods in the ceremonies known as *mamampe ragaraga* and *morgondang* (see Meerwaldt 14, pp. 97, 107) retain the word base from which *pandaongan* is derived and there seem to be no plants offered. The Toba *daoeng* is said to be a split fish sprinkled with lime, which is offered to the spirits either on a hanging woven-work tray known as *ragaraga* or on the exact equivalent of the *pandaongan*, which is called, however, *porapeapean*. The *porapeapean* is a hanging house altar made of *saroeng mornaek* wood in the form of a square tray (really like the floor of a Batak house). It has boards along the four sides corresponding to the four planks forming the base of the walls of the Batak house, and simi-

to the roof, but may be let down when offerings are to be made. In visiting about among the people one finds that relatively few houses have the *pandaongan*, and that although everyone knows about the *djinoedjoeng*, few have ever made the offerings to it. The *djinoedjoeng* were probably originally of four septs, perhaps conforming with the hypothetical primitive social structure of the Batak, which may have been a division into four septs. Whether or not there was originally any association with four mountains is very dubious, from the fact that now only two "nations" of the *djinoedjoeng* are associated with definite mountains, namely, Si Manoek-manoek, lying between Asahan and Toba, and Soeroengan, the great mountain west of Koealoe, south of the Asahan River. It seems not improbable that the association of the four *bangsa* with mountains may be due to the radiation of ideas from the north (Karoland) where the *djinoedjoeng* is often thought of as an evil spirit of the greater mountains or wild and terrible localities — the counterpart, in fact, of the *sinoemba* of Asahan. "*Djinoedjoeng soeroengan*" need not necessarily carry any connotation of the mountain, for this expression, as well as "*djinoedjoeng debata soeroengan*," may just as well mean "*djinoedjoeng* of the gods invoked by the word *soeroeng*" [19] as "*djinoedjoeng* of the gods of

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larly carved in the form of animal heads at the four corners. At the corners ropes are attached which are brought together in a knot above the altar into the single rope which passes over the roof tree and serves to suspend "the hanging altar of the gods." At the five knots palm leaflets and fragrant grass are attached. Are these, perhaps, the leaves from which the structure gets its name? Compare the illustration of the *pandaongan* in Plate XX, Figure 3.

[19] The invocation of many gods and spirits begins with the powerful and auspicious word *soeroeng*, which as Pleyte (23, p. 276) says, is untranslatable, but serves for getting the attention of spirits and gods. It means more than Hail! or Hear ye!, for in it resides the power to compel attention. The present speech of the Batak indicates that in the past there may have been a vocative form of words which ordinarily end in a vowel, formed by suffixing *–ng*. For instance, *ama*, "father," and *ina*, "mother," have the vocative forms *amang* and *inang*, which are used in the prayers to ancestral spirits. These forms suggest that *soeroeng* is an old exclamatory and attention-compelling form of *soero* or *soeroe*, "prayer," "order," a General Indonesian word base which Kern (9) has shown to extend all the way to Fiji. Those gods which are classified as *soeroengan*, i.e., those who are invoked by the word *soeroeng*, are themselves divided into four groups, suggesting the four nations of *djinoed-*

Mount Soeroengan." In *djinoedjoeng sori, djinoedjoeng debata isori*, etc., we are clearly concerned with intermediaries between man and Debata Sori (Sri of the Hindu trinity) the god who particularly controls human fate. (The Batak, however, are likely to think of *debata sori* as a class of gods.) In *djinoedjoeng si manoek-manoek* there is a possible connection not with the mountain of the same name but perhaps with the Creator's bird which laid the three eggs from which sprang the three gods who are usually identified with the Hindu trinity. This bird of the Creator, Debata Moela-djadi na Bolon, was named Manoek-manoek Hoelamboe Djati. [20] The other names applied to *djinoedjoeng* have not been traced definitely to either gods or mountains. It is a fair guess that *djinoedjoeng sagala* are the messengers of the deified ancestors *sagala radja*, and that in this connection *sagala* may not mean "all," but is more probably equivalent to *sahala*, auspicious, divine.

mambere pagar: "to make offerings to the protectors." The literal meaning of *pagar* is "fence," but the word is much more frequently used by the Batak to designate magical devices (Pl. XXIV) made by the *datoe* to protect persons, houses, whole villages, fields, and the like, from evil spirits and their influences. The *pagar* is generally but not always a carved image haunted by

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joeng. They are called: (1) *soeroengan sori*, (2) *soeroengan na godang*, (3) *soeroengan si legar* and (4) *soeroengan si manoek-manoek*. These names are very significant, for they show that all the *djinoedjoeng* are properly *djinoedjoeng soeroengan*, i.e., messengers of those gods called *soeroengan*. *Djinoedjoeng soeroengan* is not, or at least was not originally, the name of one of the four special classes. The qualifying term which is necessary to make it specific in its application (*na godang*, "great"; *sori*, identified with Hindu *sri; si legar*, ruling (?); *si manoek-manoek*, "the bird-like") presumably dropped away as a result of the secondary idea that each of the four classes came from its own mountain. Thus, *djinoedjoeng soeroengan* came to seem to be specific and to mean the protective spirits of the mountain of the same name. The lists of *djinoedjoeng* and associated *marga* which are current in Simĕlœengoen (see p. 52) lend support to this argument.

[20] See the creation myths and genealogies compiled and published by Hoetagaloeng (6), one of the first Bataks to take an intelligent and effective interest in preserving the traditions of his race. It is safe to say that his book will throw immeasurably more light upon the migrations and relationships of the various Batak septs than has heretofore been discovered and recorded.

one or more spirits (*begoe*). (The *pagar mangoeras*, just discussed, is an example of a *pagar* with no image.) As a matter of fact, in some cases the *pagar* is not material at all. It is essential to every *pagar* that a spirit should be willing, for the offerings made to it, to perform certain services designated by the *datoe*. Some classes of spirits have particular powers, and can be utilized only for very specific *pagar*. The spirits may be those of men, especially of men who have been sacrificed for the purpose, or spirits of men who have not had proper burial rites performed, or spirits of men who have left no descendants, or the spiritual offspring of spirits, who throng everywhere, or the spirits of animals. Only a few very sacred *pagar*, made for the benefit of the community as a whole, are haunted by the spirit of a human sacrifice. In general, *pagar* are for very ordinary everyday purposes, some of them not of the greatest importance, and wild spirits are secured for them by the magical invocations (*tabas*) of the *datoe*. An image, as such, has no efficacy at all, and a *pagar* is esteemed accordingly as it has a record of successful protection. Some kinds are permanent and others temporary. One with a good tradition is given offerings as often as the *datoe* considers necessary, or out of gratitude, at the successful outcome of events such as childbirth and illness. Most of the *pagar* which have a carved image as the residence of the protective spirit have a hole of no great size at the region of the navel. A specially prepared offering to the spirit is packed into this hole. At a ceremonial betel-chewing the more important *pagar* are remembered, and are smeared all over with red *sirih* spittle, being handed about from one person to another, spat upon, and rubbed with the hand. The place of a *pagar* is determined by the duty it has to perform. For example, the *pagar mangoeras*, of which the function is to keep evil spirits from entering the house, is hung above the door. The curious fringes and other objects that hang under the gable of a Batak house are *pagar* to intercept various classes of evil spirits. Some of them are actually intended as ghost catchers, and are believed to act mechanically, but to make sure of their efficacy friendly spirits are induced to haunt them. It is understood that the lot of those spirits who wander about looking for sustenance, and have no

descendants to make offerings to them, is miserable indeed. Such a spirit, for even a minimum compensation, is likely to have its position greatly improved if it becomes the *begoe* of a *pagar*. A weak spirit becomes strong by eating the offerings, and so it comes about that an old *pagar* which has been well fed is more efficacious than a new one. For an important *pagar*, such as that which protects the entrance to a village, the most appropriate offering is a red cock with long spurs, together with three kinds of sacred herbs, which are most often *roedang na gerger*, *roedang roehoeh-roehoek* and *roedang tapoewa*. This offering is made whenever there is especial reason for the *pagar* to be watchful, and once a year in any event, lest the spirit (*begoe*) become too weak to perform its duties, or desert its post. Part of the offering is rubbed into a paste with coconut oil, and stuffed into the "navel" (*poesoek*) of the image. Although there are some conspicuous exceptions, a *pagar* is generally made for quite legitimate protection. There is a great variety of them, some of which are figured in Plates XII–XV, XXII–XXIV, and discussed in the description of the plates.

mambere pangoeloebalang: "to make offerings to the *pangoeloebalang*" ("leader of the warriors"). The *pangoeloebalang* is not a living person, but the spirit (*begoe*) of a human being sacrificed by the *datoe* in behalf of the whole community, and induced to take up its residence in a rough image. These images were usually of stone,[21] but in Asahan they were also made of the stem of tree fern.[22] They were believed to give warning of the approach of hos-

[21] Since the writer was unable to see a typical stone *pangoeloebalang* in Asahan, some are illustrated which were seen near by, in Simëloengoen. See Plates XVI–XVII, and particularly the descriptions of these plates. Specimens in the Batak Museum at Raja are illustrated and described by Neumann (21, 22).

[22] The *pagar si pondom oeol-oeol* (Pls. XII, XIV–XV), made of tree fern, is known as *pangoeloebalang*, or, more correctly according to Pardembanan usage, its animating *begoe* is *pangoeloebalang*. The equivalent of this *pagar* may exist in Toba. Kruijt (10) was informed that in Toba when a new village was founded two plants called *pangoeloebalang* were planted, a tree fern to represent a man and a banana to represent a woman. Before planting these, a dog was sacrificed and eaten, the head being buried at the place. The stems of the two plants were later carved into images which guarded the village against enemies and spirits. When the images decayed they were replaced.

tile strangers, either by making strange noises or by possessing a sleeping person in a dream. The *begoe* would also delude an attacking party on a dark night and lead it off into a swamp, or into the river. After this had happened they would know that their intentions had been discovered and would give up the attack. The *pangoeloebalang* had the power to raise a dense fog, in which the enemy would lose their way, or to bring on a cloudburst so that they could not cross the rivers. As will be seen, the function of the *pangoeloebalang* was that of a *pagar*, and it was frequently called a *pagar*. Usually those *pagar* that were concerned in some way with war were called *pangoeloebalang*, but the word is also used to designate the animating spirit of any *pagar* that was made by a human sacrifice. In this connection it is important to call attention to the fact that *pagar* were made in each district to act as protectors against the *pangoeloebalang* of the neighbors, and such *pagar* were known as *pagar pangoeloebalang*. The ghost haunting a *pagar* made by human sacrifice would be *pangoeloebalang pagar*. The distinction is important. The *pangoeloebalang* receives the usual offerings given to the important *pagar*, and also eggs and palm wine. Needless to say, no living *datoe* in Asahan confesses to have made a *pangoeloebalang*. For an account of the gruesome ceremony with which they were prepared see Warneck (27, pp. 64–66, 93–94; 29, pp. 73–74), and Meerwaldt (14, p. 105).

mambere tondi: "to make offerings to the souls" (of the living). Disease is believed to be caused by one or more of the seven souls (*tondi*) leaving the body. This may happen either because the soul is lured away by outside attractions, or because a wild spirit (generally a *sinoemba*) wishes to enter the body, and induces the chief *tondi* to expel one of the lesser ones in order to make room for him. It is the function of the *datoe* to find out what the condition is and to take proper measures accordingly. In the first case the errant *tondi* will have to be found and given offerings to induce it to come back. In the latter case offerings will have to be made to the chief *tondi*, in order that he may allow matters to be righted, to the dispossessed *tondi*, to placate him and induce him to reenter, and to the *sinoemba*, in order to induce him to leave. The offering to the wandering *tondi* consists of the smoke of burning

benzoin (*kamoenjan*), coconut oil, a white hen, sacred herbs (*roedang hare-hare, roedang hatoenggal, roedang na gerger, roedang toba, hamoedjoe, garang-garang*) and inflorescence of the betel-nut palm (*mange-mange pinang*). If the wandering *tondi* has been kidnaped by a *sinoemba* or other evil spirit it is ransomed by a substitute. The basis for the soul cult lies in the fact that all seven souls must stay in the body if the individual is to remain alive or in good health. Since they sometimes quarrel, and have no strong allegiance to the individual to whom they pertain, it is a problem to keep them living together peacefully. If they do not find conditions in the body to their liking, they are likely to be lured away. One, especially, Si Rahanan Magoh, likes to ignore the authority of Si Margomgom, the chief *tondi*. He is described as a rascal. The names of the seven as given by different informants do not agree.[23]

[23] The idea that man has seven souls is also found among the Malay. Skeat (24, p. 50) says: "Every man is supposed, it would appear from Malay charms, to possess seven souls in all, or perhaps, I should more accurately say, a seven-fold soul. . . . What these seven souls were it is impossible, without more evidence, to determine. All that can be said is that they were most probably seven different manifestations of the same soul. Such might be the shadow-soul, the reflection-soul, the puppet-soul, the bird-soul (?), the life-soul, etc., but as yet no evidence is forthcoming." A thoroughgoing study of the Batak beliefs would probably throw light upon the Malay. However, it is hard to get definite information from the Batak concerning the qualities of the several *tondi*. This would seem to be true in the other Batak districts as well as in Asahan. Neumann (16, *derde afdeeling*, pp. 299–302) found the belief in seven souls in the Pane-Bila region, and lists names of five of the seven, only one, Si Margomgom, agreeing with any name in the writer's two lists. One soul that he lists, *tondi* Si Djoengdjoeng, lives not in the body but in the heavens. There is an obvious verbal similarity to the name of the Pardembanan "advisory spirit," the *djinoedjoeng*, but in Asahan informants all said emphatically that the *djinoedjoeng* was not one of the *tondi*, but a *begoe*. (The word *djinoedjoeng* seems to be *djoeng-djoeng* with the infix *in*, modified by loss of *ng* before *dj*.) For the Simĕloengoen district Tideman (25, pp. 157–159) gives the fullest account we have of the multiple soul. He lists twenty-two names applied to various *tondi*. His informants generally said that there were seven souls but others said eleven, thirteen, and three. The names were usually given in various combinations of seven. In one name only, Si Djoengdjoeng, is there correspondence with the Pane-Bila list. There are three correspondences with the Asahan list, Si Mandoeraha, Si Goeliman (= Si Mangocliman), and Si Rattiman (= Si Rastiman). Also one may suggest that the name Si Moediman of the Simĕloengoen list is a second variant of Si Mangoeliman. Joustra (8, p. 154)

Two lists are as follows:

(1) Si Margomgom	Si Margomgom
(2) Si Mangoeliman	Si Mangoeliman
(3) Si Messer	Si Mandoeraha
(4) Si Mancrenere	Si Manerenere
(5) Si Rastiman	Si Rostemon
(6) Si Meongmeong	Si Rahanan Magoh
(7) Si Mardandi	Si Rahanan Mate

The relative strength of the seven *tondi* and their behavior toward one another determine the temperament and individuality of a person. If personality persists after death, it can only be by the seven *tondi* becoming a single spirit. Such a ghost is called *simangot*, and the "ancestral spirits" (*padjoe-padjoean*) who are invoked to give advice and assistance to their descendants, and who identify themselves when they enter into and possess the medium (*sibaso*) are *simangot*. The integration of the *simangot* is secured by the sacrificial ceremonies at the funeral of the dead. If the ceremonies are neglected, or if a person dies under sudden

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says of Karoland that the distinguishing of seven souls is mere scholastic wisdom, and not a living idea in the folk belief. Kruijt (10, p. 23) would seem to imply that what some writers on the Karo may have interpreted as a belief in seven souls is nothing but a statement of the seven places where, according to Batak ideas, the existence of soul-stuff is most manifest, namely, (1 and 2) in the pulses, (3 and 4) in the upper arm, (5) in the fontanelle, (6) in the heart, and (7) in the neck. (Among the Batak all normal involuntary movements are ascribed to *tondi*.) In Toba likewise seven *tondi* may sometimes be heard of, but they play no part in practical belief, according to Kruijt. He says that the researches of Warneck showed that the seven souls of the Toba Batak are nothing but the functions and powers of the soul. One is to protect the possessor; one to watch over his possessions and descendants; a third to inspire hope and diligence; a fourth, the avowed enemy of the body, seems to personify innate waywardness. So far one may follow the argument, but when we are told that another of the seven is buried with the afterbirth, an obvious inconsistency arises, showing a mixture of ideas. For instance, although the idea of the seven souls is ill defined among the Karo, they do believe in two spirits, invoked as *kaka* and *age*, "elder brother" and "younger brother," who are respectively the souls of the flood of waters and the afterbirth (Westenberg, quoted by Kruijt, 19, p. 26). In Asahan I did not happen to hear of a spirit derived from the amniotic fluid, but the spirit of the afterbirth, known as *adek ni tondi*, "little brother of the soul," was a common conception. This spirit, however, is not enumerated among the seven souls if the writer's information is correct. Van Ophuijsen (37, p. 54) gives one of the best accounts of the multiple soul, describing (for

or terrifying eireumstanees, the several *tondi* become lesser *begoe* without the personality of the deceased. One of them generally haunts the grave or place of death. The others wander at large. A *simangot* remains at the grave or "goes to Toba." It may be reealled by drumming. Although a *tondi* is a distinct entity, it may grow in strength by the assimilation of other *tondi*. The seven *tondi* of the body are constantly losing strength because all the excreta of the body carry away part of their soul-substance (also called *tondi*). The loss must be made good by eating foods rich in *tondi*. To eat the remains of sacrifieial offerings may fatten the body, but does not nourish the *tondi*, because the *begoe* to whom the offering was made has already eaten the *tondi* of the food, leaving only the substance. Different diseases are caused by the wandering of different *tondi*. All may leave for a brief period except Si Margomgom. If he leaves, death occurs at once. One *tondi* is the trouble-maker. He is the cause of one's mistakes. There is one of the six lesser *tondi* who helps the chief *tondi*, es-

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the Mandailing Batak) some of the characteristics of each of the seven. The soul of the placenta is not one of them. One may recognize a strong similarity to Warneck's account for Toba and the writer's for Pardembanan, particularly with regard to the harmful, mischievous soul. He adds the especially interesting bit of information that one of the souls is the dream-soul. In conclusion, it is clear that only in the lowland and border districts, where the Batak have long been subjected to Malay influence and may have retained pre-Islamic Malay beliefs, is the idea of seven distinct souls prevalent. In the central highlands of Toba and Karo, where through long isolation the Batak culture is purest, the idea of *tondi* is that of soul-stuff, of which there may be a greater or less concentration in any given being or object, but which in itself is as formless as air. In the highlands, however, there is evidence that differences in quality of *tondi* are thought to exist. In accepting Warneck's conclusion that the soul-stuff concept in its simplest form, as Kruijt (10) found it among the Karo and Warneck (27, 29) among the Toba, is typical of the animistic religions of the East Indies, one should not lose sight of the fact that there are gradations to the much more complex conception which is found in neighboring people of the same or a lower grade of culture. Probably the Batak have everywhere modified somewhat, even if but slightly, the idea of undifferentiated soul-stuff. Conversely, even where the multiple-soul theory obtains, the conception of *tondi* as soul food, of unformed *tondi* in spittle, excreta, etc., shows that the simpler idea has not been completely dispossessed. Furthermore, it would appear that nowhere do the Batak seem to have a very clear mental picture of all the workings of the multiple soul theory. Like all other religions, animism has its mysteries.

pecially by going out and hunting up missing *tondi* who have wandered out without malicious intent, as happens during sleep, and have got lost. This accident may happen if a sleeping person is suddenly awakened. Some dreams are adventures of wandering *tondi*. The lack of coincidence in different lists of the *tondi* may possibly be due in part to sex. One informant told the writer that all the *tondi* of a woman were female, and would become female *begoe*, but that the *tondi* of a man were some of them female and some male, but how many of each he did not know. Insanity is explained by the entry into the body of an evil spirit, which takes the place of one of the *tondi* while the latter is wandering, and the form which the insanity takes depends both upon the particular *tondi* dispossessed and upon the nature of the intruder. The worst type of intruder is a *pangoeloebalang* (spirit of a human sacrifice) to which pledges have been made and not redeemed. It causes one to become "mad" (*maboek*) and to commit the most terrible deeds. If it possesses one an offering must be made before the door consisting of "a most ill-omened dog and the blood of it" (*bijang sial tong dohot moedarna*), "spices" (*amboewan*), and all kinds of "potatoes" (*sagala oebi*). Enough has been said to give one an idea of the difficulty there is in having seven souls, and of the great importance of the soul cult. Among the chief duties of the *datoe* must be accounted the finding and placation by offerings of lost souls, the ransoming of kidnaped souls, and the strengthening by special *tondi*-rich foods of souls that are in a run-down condition.

marsiroedangan: "the making of reciprocal offerings of sacred herbs" (*roedang*). It is carried out as one of the marriage ceremonies, by persons who undertake an important enterprise together, or by other persons who wish to pledge good-will to one another. It was one of the ceremonies when I was received into a *marga* at Silo Maradja. (See Pls. XXVII–XXIX.) The procedure was that which would have been followed had a stranger arrived from another district, and claimed descent from the same *marga* ancestor. The "spirits of the ancestors" (*padjoe-padjoean*) would have been questioned through the medium, and had it been decided that the stranger's claims were valid, he would have pledged

his good faith by participation in a series of ceremonies with the members of his own *marga*, and if he were a member of the chief's *marga*, also with the *hoela-hoela* sept, the latter being the preferred marriage sept from which the chief must take his wife if he desires the chieftainship to descend in his own line. The *hoela-hoela* is that *marga* to which the wife of the traditional stem ancestor belonged. In my case, since I was adopted as a younger brother of the chief, *marsiroedangan* was carried out with the unmarried girls of *marga* Si Rait Holboeng (the chief's *marga*) and *marga* Si Toroes (the *hoela-hoela*). The former became my sisters, and the latter the preferred marriage group. A few other girls, of closely related families, also participated. The latter were mostly of *marga* Si Boeea (the crocodile sept), whose men marry by preference women of Si Toroes, the *hoela-hoela* of the chief's line, but there was also one charming little "Malay" (i.e., Muslim) girl, Siti, daughter of the Malay chief of Taloen Djoring, Hadji Djai Noetdin, whose wife, Hadji Maesa [24] was an elder sister of Ria Maradja and therefore became my "elder sister" by the betel-chewing ceremony on the same day that Siti became my "little sister" by exchange of sacred herbs. The *marsiroedangan* ceremony consisted of dancing first with the *radja* and then with the unmarried girls of his *marga* and any others whose relationship was to be that of *adek* ("little sister"). They were joined by a few small boys whose relationship was also to be *adek* ("little brother"). The blood relatives then gave place to the *datoe*, representing the men of the *hoela-hoela* sept. At the conclusion came the dance with the little girls of the *hoela-hoela* clan. After the preliminary dancing the *datoe* prepared bouquets of the sacred herbs (*roedang*) — a large one for the writer (known during the ceremonies as the "chief participant," *soehoet na bona-bona*) and small ones for

[24] It is well known that the Malays are exceptional among Muslims in that they permit their women to perform the pilgrimage to Mecca and thus to become "Hadji." Djai Noetdin made the pilgrimage with his wife and two small children, so the family is of uncommon sanctity. The two elder children are Hadji Hasan and Hadji Patima. The third child, Siti, was born after the return from Mecca. All three are *adek* to the writer. It was a curious experience to acquire Muslim relatives of undoubted piety by a pagan ceremony!

each of the girls. During the dancing and the subsequent ceremonies the *soehoet na bona-bona* wore a ceremonial head-dress (see Pl. XXVIII, Fig. 1) made by superposing and folding three squares of cloth — white, Turkey red (*kasoemba*) and black, each square a little smaller than the one on which it was placed, so that in the completed head-dress the three colors showed equally. The girls danced bareheaded, but were given strips of cloth to use as bands in which later they wore the *roedang*. The girls sat in a row at one side of the dancing mat. Opposite them sat the chief participant. The tray of *roedang* bouquets had already been prepared by the *datoe*. Standing with them in his hands he invoked blessings upon the participants (Pl. XXX, Fig. 3) and upon the sacred symbols which they were to present to one another. Then he seated himself at my right with the bouquets and the censer in which smoked the burning benzoin (*kamoenjan*) before him. First he fumigated the large bouquet, mumbling invocations as he did so, and handed it to an old grandmother of the *hoela-hoela* sept, who, in behalf of the girls, placed it in the chief participant's head-dress, while another old woman (also a "grandmother" of the chief participant) threw rice as a "purifier" (*tambar*) over all the participants. Then the small bouquets were fumigated one by one and handed to the chief participant, who presented them to the girls. The old women threw rice, the *saroene* shrilled its wild tune, the gongs boomed, and as the participants rose for the final dance of the ceremony the spectators applauded with a high-pitched cry. The little girls, holding bowed heads at the same angle, with tense hands executing the same slight movements, moved slowly sidewise back and forth across the mat, each movement of the feet changing their position only a couple of inches. The unskilful chief participant danced before them as well as a few rehearsals permitted him to do, and so the ceremony ended. On other occasions the procedure was not dissimilar, except that if only adults were concerned, the sacred herbs were always handed personally by one participant to the other, after they had been fumigated and blessed by the *datoe*.

marboenga nasi: "beflowering the rice." A ceremony to please the guardian spirits (*djinoedjoeng*). The boiled rice is

neatly mounded upon a plate (an "heirloom," *poesaka*, if one is available) and ornamented with red Hibiscus flowers,[25] rice-flour dough, and sacred herbs. The *pandaongan* (hanging altar) is lowered (Pl. XX, Fig. 3), and the plate placed upon it while the *datoe* invites the *djinoedjoeng* to join in the meal. Then a portion of the rice is removed to remain on the *pandaongan*, and on it the blossoms and herbs are rearranged except that small bouquets of the latter are tucked in the hair of the participants at the ceremony. The altar is again drawn up to the ceiling, where the *djinoedjoeng* prefer to eat, in seclusion, and the household, with the *datoe*, consume the remainder of the rice.

marsahata: "to become of one accord." A ceremony in which friends or members of a group pledge fidelity to one another. Each invokes blessings on the others in the presence of the *datoe*, who pronounces formulae which render the compact binding.

mardebata: "to worship the gods" (by drumming and dancing). One of the greater religious ceremonies, formerly carried out by all the people subject to each one of the greater chiefs. It appears to have been discontinued a number of years ago, the last two observances having been carried out under the direction of Datoe Leitek of Mariadoge. At these ceremonies ancestral spirits were worshiped in order that they might become greater divinities.

makkirap:[26] "to summon" (a wandering soul). The *datoe* prepares an offering of sacred herbs and food which he offers the offended soul (one of the six subsidiary souls) in consideration of its return to the sick man whom it has deserted. The ceremony is often condensed with another called *martoboes tondi*. The latter

[25] Red Hibiscus flowers are especially important among the sacred plants wherever the writer has been in the Batak lands. Lörzing (11) gives the Karo myth accounting for the origin of a number of sacred plants, which sprang from the several parts of the bird Si Nanggoer Dawa-dawa, sent by the creator to this "middle world" in order to be put to the greatest possible use. It was sacrificed by the god of the middle world, and its blood became *boenga-boenga*, the red Hibiscus. (See description of Pl. VIII.)

[26] Warneck (26, p. 92) gives the following information regarding the corresponding Toba ceremony: "*manghirap tondi*, der Seele eines Kranken winken mit einem weissen Tuch, damit sie zurückkehren, und der Kranke somit gesund werden soll."

is the ransoming of a lost soul which is held in captivity by an evil spirit (*begoe* or *hantoe*). There must also be an offering in this case to the evil spirit, the identity of which may have been divulged to the *datoe* by his spiritual preceptor (*goeroe*), by divination, or which the *datoe* may simply invoke as "So-and-so who keeps the soul of So-and-so." The offerings are exposed wherever the *datoe* believes the soul to have gone or to be held in restraint. (See Pl. XI, Fig. 3, and its explanation for the type of altar used in the ceremony.)

palao andjapan: "to attend the altar." There are several varieties of the general type of altar known as *andjapan*, which are shown in Plates V, VI, VII, XI, and described in the explanations of the plates.

makkisik-kisik: (to determine by a kind of magic, for which the "apparatus," *ramoean*, consists of *sirih* quids and one egg, what particular evil spirit is making trouble, and from which direction it comes).

mangkahoeli ladang: "to satisfy the spirits of the clearing." One of the ceremonies in which an *andjapan* ("altar") is made. The spirits of the *ladang* are summoned to partake of various offerings. It is an annual ceremony generally, but extra celebrations may be held if one of the household is ill, and the indications point to the spirits of the *ladang* as being guilty, or if the crop is doing poorly.

martoboes: "to offer a fine" (to the spirits, or to offer a ransom, or a substitute). A general name for a great variety of ceremonies in which something is dedicated to the spirits or gods for a specific return, or in expiation of an offense that would result in greater loss than that occasioned by making the sacrifice. *Toboes*, or "ransoms," might in the old days have been anything from a small sum of money to a human life.

palao parsili: "to arrange the offering of a substitute" (for a soul). The common type of substitute is called *parsili* without any qualification. It is described below, and figured in Plates XVIII–XIX. The special types are *parsili magok*, which has to be buried with all the funeral ceremonies appropriate to the person for whom it is a substitute, *parsili boeang-boeang*, which is thrown

into the river at the strategic moment when the evil spirit has entered it, and *parsili si paembar na bolon*, which is made of clay and buried at the intersection of two paths. A very rare type is *parsili na holong*, set up at a crossway and allowed to remain, to signify to the spirits that So-and-so has performed the ceremony of giving up all his possessions for the love of his fellow-men, and is now too poor to be envied or worth troubling. The usual *parsili* is a human figure made of the stem of a banana plant. The banana is dug up, so that the true underground stem may be carved into the head. The aërial portion, trimmed to the proper length, becomes the body. At the region of the heart a hole is cut (which is, curiously enough, of the shape which we conventionally call heart-shaped) and in this hole is placed a package containing "finger nails" (*koekoe*) of the sick man, of the members of his household, and of all his friends who are willing to contribute "soul-stuff" (*tondi*) to the sacrifice made for him. The finger nails are mixed with a mashed banana and folded in a piece of banana leaf. The *parsili* is now wrapped in a soiled cloth belonging to the invalid, placed on his soiled sleeping-mat, and carried wherever the evil spirit may be who has stolen a soul of the sick man, or is otherwise tormenting him. If the evil spirit accepts the offering it is expected to relinquish the captive soul but may not do so. The spirit knows by the smell of the cloth and the mat for whom the *parsili* is made. It gives up a specific soul, and receives in return part of all the souls of those who make the offering (the seven souls of each person who gives finger nails are all diminished in strength, for the *koekoe* contain much *tondi*) together with the "*tondi* of the uncleanliness of the mat and worst cloth" and the *tondi* of the banana plant. It is *pantang* ("forbidden") for anyone to touch a *parsili*, but nevertheless the relatives and *datoe* may try to cheat the evil spirit by substituting something worthless for the finger-nails in fear that the latter might be used for sorcery if someone dared to steal them from the *parsili* before the spirit accepted the offering. After the spirit has taken the offering the finger nails are no longer valuable. Since the intention of an evil spirit is often to bring about the death of the person who is ill, the treatment of the *parsili* symbolizes the death of the person.

The *parsili magok* ("complete or perfect substitute") has to be buried without the slightest deviation from the procedure at an actual funeral. When I wished to witness the "mask dancing" (*manotor topeng koeda-koeda*) as performed at the funeral of a great chief, I was informed that it would insult the "ancestors" (*padjoe-padjoean*) to make play of a ceremony "reserved for majesty" (*kabosaran*), but that since the *radja* was ill the ceremonies might be carried out at the burial of a *parsili magok*. The plan was duly carried out. The "funeral" required much preparation and was conducted solemnly and realistically from the washing of the substitute for the corpse to the procession to the grave, where the *parsili* was buried. The coffin was hollowed from a log, carved and decorated in conformity with the rank of the *radja*, and the "royal bier" (*roto karadjaan*) on which it was carried was cast aside at the grave to rot. The temporary grave shelter, ornamented with fringes made by cutting folded cloth, was set up. The only deviation from a real burial was that the coffin was placed in a very shallow hole with the lid above,[27] so that the evil spirit would find the *parsili* without trouble. One of the best accounts of the *parsili* (Siměloengoen *parsilihi*) is given by Tideman (25, pp. 162–163) who tells a Siměloengoen legend accounting for the making of it. Neumann (20) has shown that in ancient times a human being sometimes served as a *parsili*. Tradition is that Lingga was founded by a Karo chief who was expelled from his own village as a *parsili*. All the older references to the *parsili* are interestingly summarized by Kruijt (10, p. 97).

palao sipaembar:[28] "being concerned with making the imitation" (equivalent for a sick man). *Si paembar* is one of the special types of *parsili* mentioned in the foregoing paragraph. It is made of clay and as closely resembles the invalid as possible. The clay

[27] An old Batak from Toba told Kruijt (10, p. 372) that in olden times the graves were made very shallow for two reasons: because they wished to give the soul a chance to leave, and because they feared that death would be the penalty for digging too far into the earth. So it may be that the shallow burial of the *parsili* represents the survival of an old custom. Compare also burial in Siměloengoen (Bartlett 3, Pls. XVIII and XIX).

[28] From *embar*, which would appear to be cognate with Toba *hombar*.

is mixed with *sirih* spittle and finger nails. The image is buried on a path, most frequently at a crossway.

palao boewang djakka: "one who undertakes casting-away of misfortune." In Asahan this is a ceremony generally performed to cure children afflicted with St. Vitus's dance, convulsions, or epilepsy. (But compare the account for Simĕloengoen given by Tideman, 25, pp. 160–161.) These diseases in children are called *sappoe* (Toba *sampoe*, Malay *sawan*). A *parsili* is made of a young banana plant. Beside it a *boeloeng ni bagot* ("sugar-palm leaf," used to "flag" or signal spirits) is set obliquely in the ground. From the latter is suspended *mombang* (a hanging magical device — sometimes a hanging tray for offerings). At intervals on the palm midrib are notches to receive *sirih* quids for the *begoe* or *hantoe* who causes the disturbance, and the hanging tray bears other offerings. The *datoe* invokes the *begoe* to take the substitute and leave the child alone. If the case is not serious the *boewang djakka* may be simplified, consisting of the *boeloeng ni bagot* and the *sirih* quids alone. The apparatus is placed near the house or at a crossway where the evil spirit is believed to pass. (See Pl. XX, Figs. 1–2).

palao holong ni roha: (undertaking the ceremony) "securing love of the heart" (of spirits and men). One who is tired of strife over material things and no longer desires to be an object of envy, either to spirits or to men, disposes of all his property in gifts and sacrifices and erects at the crossway a *parsili* as a ransom for his soul. Thus he hopes to obtain the "love of the heart" of those who have benefited from his generosity. (The *datoe* says this ceremony has gone out of fashion!)

pasakkoeton mangoepa-oepa: "one acting as intermediary in the giving of (marriage) gifts." The *datoe* secures the consent of the ancestral spirits to the proposed marriage, propitiates spirits and persons who might object to the marriage, and determines an auspicious time, in addition to arranging the details of the marriage present to the parents of the girl.

manabari manggoeal toba: "to purify" (i.e., expel evil) "by drumming in the Toba style." Drumming is a chief means of worshiping the gods and ancestral spirits and of driving away

the demons. The different "beats" (*lagoe*) are named and are used for different purposes, some being reserved for special ceremonies. The cradle of the race was Toba, whence ancestral spirits are summoned by the drumming, from whose beats the demons slink away.

patortorhon oegas ni tondi: "causing that to dance which is the property of the soul." The properties of the soul are the masks dedicated to a dead chief, in which retainers dance at his funeral. The masks are of two kinds, those representing human faces called *topeng* or *torping*, and those called *koeda-koeda* or *hoda-hoda*, representing the entire body of a horse, the head, curiously enough, being represented by the dried head of a horn-bill or by a wooden carving of the latter. The hands of the *topeng* dancer are concealed, being tied within cloths from which protrude two wooden hands which he holds and clicks together in time with the step and the beating of the gongs and drums. The horse mask, a bamboo frame covered with cloth, is so constructed that the dancer, by pulling strings, moves the horn-bill head from side to side, or up and down. The dance is probably a symbolic substitute for the former sacrifice of one or more slaves and a horse at the funeral of a chief. In a previous paper the writer (Bartlett 3, p. 49) said that he had found in Asahan no evidence of a former horse sacrifice. It is now certain that the *topeng-hoda-hoda* dance is well known in Asahan. The *topeng* is much more realistic than the *hoda-hoda*, and is more likely to be seen because it is left in the grave-house, or hung on the grave-post, whereas the bulky and flimsy *hoda-hoda* is flung aside at the grave and soon disappears. Furthermore, several of the minor chiefs are entitled to the use of the *topeng* at their funerals, whereas there were only three pagan chiefs in the old days who were entitled to the *hoda-hoda*. One of the three little "kingdoms" (namely, Bandar Poeloe) is now Muslim, and all the old practices have vanished. In the other two, Silo Maradja and Boentoe Pane, it is questionable whether the old ceremonies will ever be held again, since part of the people are nominally Muslim and the old *datoe* are dying off.

manggoeali parsoeroan: "to beat the drums at the place of prayer." The purpose of the drumming is of course to summon

the spirits. The sacred inclosure and holy-of-holies in the form of a little house, constituting the Batak equivalent of a temple, will be dealt with in another paper on the "Sacred Edifices of the Batak."

mambere parhahap: "to offer up the first comer." After the making of a new forest clearing (*djoema*) it is anticipated that the wild animals will destroy most of the chickens and goats. A sacrifice is therefore made of the first fowl or the first goat brought into the clearing. The spirits of the *djoema* (*ladang*) are begged to be satisfied with the death of the first intruder and to spare those of its kind who are to follow after. Sacred herbs and *lomang* (glutinous rice cooked in bamboo joints with grated coconut; see Pl. IX, Fig. 2) are offered with the victim, which is left tethered or set at liberty to die from natural causes. If, as is generally the case, the offering is eaten by a predatory animal the latter is regarded as an incarnate demon (*begoe*). Although the distinction is not carefully made except on ceremonial occasions, *begoe* is distinguished from *begoe-begoe* in that the former may appear in the form of some animal or monster, whereas the latter cannot be seen, and cannot become substantial except by entering the body of man or beast. In general, the *simangot* (derived from the fusion of the seven *tondi*, and preserving the personality of the deceased) is said to be *begoe-begoe*. Other gods, including some that may be supposed to be deified ancestors, have the power to appear at the places sacred to them (*sombaon*) in the form of a kind of enormous serpent (*baganding*). The *djinoedjoeng*, or guardian spirit, may appear as a bird, and is therefore a *begoe*. More superstitions surround the tiger than any other animal, and if *begoe* is being discussed by natives without any qualification, one may be sure that the tiger is intended, *begoe* meaning "tiger" as well as "demon." More explicit words for "tiger" are *arimo* (or *harimo*) and *babijat*. If a tiger renders itself invisible (for it is believed to become non-substantial or to assume any form, at will), it is known as *si marlindong*.[29] If a tiger changes itself into a man, or into weeds in the *ladang*, or into *lalang* grass on the plains, it is called *barlin-*

[29] This meaning would indicate that the Toba dictionary may be in error in making *lindong* a synonym of *lindang*, "spot," "speck."

doeng. If such a changeling can be destroyed it is great strategy.[30] A *begoe* is then utterly destroyed or at any rate greatly weakened. The best offering to the *begoe* of a new clearing is an old cock or goat of which the offspring may later be brought to the ladang. One says then that "the old one has died that its offspring may live."

panramot adjimat takkal pamoepoes: "to place on guard the charm that begets children." This is a phallic rite to insure fertility and to protect the children (especially the unborn children) against evil spirits. Before it is carried out the *datoe* must beg the pardon (*minta ampoen*) of all the friendly spirits, and ask them not to relinquish their efforts to guard the women and children. The evil spirits that are to be terrified by the charm and driven away are those that cause sterility and prevent normal childbirth.

panoeroengi: "the summoning of spirits" (by invocations beginning with the powerful word *soeroeng*). The spirits thus invoked are of four classes, *soeroengan sori, soeroengan na godang, soeroengan si legar* and *soeroengan si manoek-manoek*. To these four classes doubtless correspond the four "nations" of *djinoe-djoeng*.

palao si patoelpak: "to prepare the repeller." *Si patulpak* is one of the numerous kinds of *pagar*, an image in which resides a captive protective spirit. This *pagar* is efficacious in driving away evil if used in conjunction with prayer and sacrifice. The "prayers" are in part magical formulae.

soeboetan ni bisa tawar pangondit: (to make the) antidote for poison "*tawar pangondit*." This "purifier," also called *tawar podana doewa*, "purifier with two directions for the use of it," is used internally as an antidote for poison (it is said to cause immediate and violent vomiting) and externally for bites and stings of snakes, scorpions, centipedes, etc. It consists of:

si dalimbat, Tacca integrifolia
si doekkap na boeroek, Dischidia
sarindan, Loranthus

[30] This belief is general in Malaya. See Sir Hugh Clifford's gruesome tale "The Were-Tiger" in *The Further Side of Silence*.

boewa kamiri, nuts of Aleurites moluccana
minak kalapa, coconut oil
aloem-aloem, Emilia sonchifolia
soeawa { Adenostemma viscosum / Ageratum conyzoides
sondoek-sondoek { Ophioglossum pedunculosum / Ophioglossum reticulatum

tawar panektehi: (to make the) "dripping purifier." This "purifier" consists of a large bamboo filled with a variety of supposedly efficacious plants. Water is poured into the bamboo and a plugged perforation in the bottom is opened sufficiently so that every second or two a large drop of the *tawar* drops with a splash either upon the wound itself or upon a piece of cloth covering it. The ingredients vary somewhat depending upon the injury and what the *datoe* has at hand or can find, but in addition to the optional ingredients the following are included:

hoenik, Curcuma zedoaria
hasohor, Kaempferia
langkoeas, Alpinia Galanga
sore, Elephantopus scaber
boewa kamiri, Aleurites moluccana
boras na horoem, "fragrant rice"

tawar dappol: (to make) "rubbing purifier" (i.e., salve). The constituents vary greatly, but among others the following are used:

si dalimbat, Tacca
sambak-sambang, Urena lobata, var.
sarindan, Loranthus
si doekkap na boeroek, Dischidia
aloem-aloem, Emilia sonchifolia

These are boiled in water, and the concentrated extract mixed with *minak* (*minjak*) *kamiri*, "candle-nut oil" (from *Aleurites moluccana*), and *minak kalapa*, "coconut oil."

si roemboek boeloe soma rata-rata: (to make) "the uniter" (splints) (out of) green "*boeloe soma*." There are three plants called "*boeloe soma*," one a bamboo, one a Podocarpus with large green leaves which to the Batak closely resemble those of the bamboo, and one a shrubby liliaceous plant. If worn in the hair by a woman or child, *boeloe soma* places the wearer under a strict

pantang ("tabu"), the penalty for violating which is some terrible calamity to the offender. The women wear *boeloe soma* in the hair when they go to hunt large edible fresh water snails in the little streams, and also on other expeditions away from home when they are not accompanied by the men. The use of *boeloe soma*, splints of the wood and leaves, to bind up a broken limb, depends upon the extension of the *pantang* to a defenseless injured person, even if a man. A curse is placed upon whoever disturbs the knitting bone, whether human being or spirit. Furthermore, the presence of nodes in the bamboo indicates to the Batak the appropriateness of bamboo for splints, since the *tondi* ("soul") of the bamboo will naturally fortify the *tondi* of the injured person at the place where the bone heals, enabling it to make something like a bamboo node. *Boeloe soma* is better than any other bamboo because of its powerful *tondi*.

pagar pangoelak di alaman: (to attend to the) "protector returner to the village common." Among the Batak of the jungle the *alaman* may be nothing but the foot-beaten ground immediately around a single house, but in the highlands it is the village street between the two rows of houses. Here the people spread out things on mats to dry and gather at little tasks to talk, the children play, the pigs, goats and chickens forage around, so that on a nice day much of the life of the village is lived in the open. It is the function of the *pagar pangoelak di alaman*, or *pagar alaman* for short, to guard the *alaman* to see that nothing wanders away, or that if it does it returns, to see that the wind does not blow anything away, that thieves (men and animals) do not steal anything, that the hens lay their eggs at home, etc. Its duties are many. It guides home the souls of those who dream. The *pagar* is usually a carved or uncarved post, at the foot of which is buried a jar containing offerings. Among the latter may be a small carved human figure. If there is no permanent post there will probably be a stick thrust into the ground with a piece of cloth as a flag on it.

manabari mamappasi djaboe: "to purify a house by thumping and sweeping." A ceremonial housecleaning undertaken for the purpose of disturbing and driving out evil spirits. The sacred

herbs are tied into the switches and brooms with which the walls and roof are struck.

pagar debata daheloeng: (to prepare the) "protector god of rovers." This *pagar* is evil, and he who uses it binds himself to live under a curse. If he eats anything not got by stealing he becomes thin and weak, and eventually dies. He can become fat and strong only by eating stolen food. In the old days the *pagar debata daheloeng* was the *pagar* of war parties; it now belongs to thieves. It lost its efficacy if the warriors failed to supply their needs by pillaging the enemy.

pagar parorot: (to prepare the) "protector guardian of children." This *pagar* (see Pls. XXIII–XXIV) has the functions of a nursemaid. It is on duty when young children have to be left at the house while their parents are at work in the clearing or away on a trip to sell produce. Children are often alone hours or even all night with no other "protector."[31]

pagar pangoelak: (to prepare the) "protector of homecomers." Its function is to see that one who goes on a journey gets back home. The main part of the *pagar* is buried under a

[31] Van Ophuijsen (37, p. 15) says that according to the notion of the Mandailing Batak every child knows its parents by little outgrowths or horns which it sees on their heads. If a child smiles in its sleep, it is smiling at its *parorot*, "guardian," a being which nobody but the child can see, any more than anybody else can see the parents' horns. He suggests that *parorot* might perhaps be translated "guardian angel" ("*beschermengel*"), but he did not chance to find out what conception the Batak had of such a being. Probably it corresponds pretty closely to the friendly captive spirits of other protective devices (*pagar*). Warneck (28, p. 109) translates a Toba prayer as follows:

> Eines Sinnes, eines Willens
> mit unserm Grossvater, der Vorkämpfer macht.
> Zaubermittel *malela*,
> Zaubermittel *marorot*,
> Unsere Feinde vernichte,
> uns aber bewache u. s. w.

He comments on *malela* and *marorot:* "Sinnlose Schmuckworte, sogenannte *gerdep ni ende*, die nur schön und voll klingen sollen. Ähnlich sind: *datolotulu, tuliudatolo, tinandastului, tuludato*, u. a. m." There can be no doubt that *marorot* contains the same word base as *parorot*, that it means "protecting," and that in Pardembanan it means especially "protecting children." *Malela* is probably related to Malay *lela* ("swivel gun").

little mound beneath the house-ladder. The accompanying carved figure is not essential but is replaced, if it is lost, at the time of making offerings to the *pagar*. The feeding takes place if some one is on a journey, or if a child or a domestic animal has wandered away, and at more or less irregular intervals as long as a house is occupied (see Pl. XXIII). There is either a permanent hollowed stone for offerings, or a reversed banana "stem" with the solid underground portion hollowed into a receptacle, which of course has to be renewed.

pagar soendat margantoeng: to prepare the "protector upside-down hinderer." This *pagar* (see Pl. XXIV) is incorporated in a carved phallic figure which hangs upside-down under the front gable of the house. "It hinders all sorts of evil from coming," and is part of the apparatus in the "magic of hanging things." The fact that it confronts face to face certain particular evil spirits which travel upside-down is one cause for its peculiar efficacy. The evil spirits realize that the *pagar* knows their ways and therefore has power over them. The exhibition of the male organs is also terrifying to these spirits, and the second cause of efficacy.

pagar soengsang kala: (to make the) "protector scorpion reverser." This *pagar* turns the sting of the scorpion against itself. A scorpion which tries to sting a man who is protected by this *pagar* dies of its own venom. The efficacy of this *pagar* extends to all injury from stinging and stabbing.

pagar debata si tolon ramboe soeksang: (to prepare) "the protector god swallower of reversed prickles." It is impossible to swallow a hairy or bristly object against the direction of the hairs or bristles (as in an ordeal) unless one is helped by a reversing *pagar*. This pagar is also believed to prevent the knife or bullet of an enemy from killing one. The knife injures its owner, and the bullet emerges from the wrong end of the gun! Hardly to be distinguished from the *pagar soengsang kala*.

parlapik dorma: "upholder of good manners." A great many usages are called *dorma* (Sanskrit *dharma*). They pertain in general to love-making and to securing the favor and friendship of others. Some of the duties of the *datoe* listed under *parkasih* are *dorma*. Others are *parboengaboengaon*, *parhata boedak*, *tapi so*

maroembe, to have an innocent and childlike appearance, *si tapi roenting boenga*, "to be one who looks like the branch that bears flowers," i.e., to adorn oneself with flowers in order to please the person whom one loves,[32] *parnipinipiwon* gifts that cause dreaming of things as one would like to have them, i.e., of having married the girl he loves, or of having placated an enemy, or of having made the friendship of one's chief or one's prospective father-in-law, and *parpoeranpoeranon*. *Dorma* in general connotes the preservation of the proprieties. For instance, it is believed that after the exchange of gifts (e.g., rings, finger-nail parings, or hair) lovers dream the same dreams. The *parnipinipiwon* that cause amatory dreams are not *dorma* unless the lovers may properly be married. To induce improper dreams or thoughts in one who cannot be married is bad, and the *datoe* should not connive at it. On the contrary, he may properly undertake to make and seek means to administer love-potions to one who is indifferent to his or her legitimate admirer. It is not *dorma* to dream about the wife or husband of a friend, or about a member of the same *marga*. If such a thing has happened, one should be ashamed and should be purified. It is *dorma* to give a gift to bring about any legitimate friendship, and the gifts themselves are called *dorma*.

[32] Lovers convey messages of quite precise meaning, often verses of songs (*ende-ende*) by wearing different kinds of flowers. It is the duty of the *datoe* to know the meaning of the plants and to teach the young people, so that they may conduct their love-making in a seemly manner. Certain of the plants symbolize gifts of great value, which the young people "in stories" used to present to one another, to their prospective fathers-in-law, and to the chiefs. Nowadays they do not have the means, and merely signify their good intentions by *dorma*.

Similar customs obtain in Mandailing and Angkola. Van Ophuijsen (36) brought together a great collection of names of plants which conveyed a definite meaning because the names rhymed with other words. He also listed combinations of plants (generally the leaves were used, not the flowers) which conveyed such messages as "If you will be mine, I shall be yours"; "However high you climb, I shall climb after you; wherever you go, I shall follow you; you must be mine"; "After we part I shall not sleep for weeping"; "Yesterday I looked for you the whole day long"; "Let us now part; if fate wills it we shall meet again"; "We shall live or die together"; "Meet me tomorrow among the sugar-palms"; "Your words have made me ashamed"; "Whatever you dream, that I dream too, even if we do not sleep together"; and the like.

If a young girl is responsive to the *dorma* of more than one young man, as indicated by her dreams, the *datoe* may undertake the nullification of the undesired affections. A man may by theft or other means secure a token (hair, footprint, cloth) of a woman whom he cannot or does not intend to marry and by magic secure her love. This is the opposite of *dorma*, but it is not viewed as unethical for the *datoe* to lend his help provided the injured husband or father is an enemy.

parkasih ni si radja bobang: "begging the favor of the lord locker (?)." A ceremony of the young married people "for the opening of the womb." *Si radja bobang* is a powerful spirit or god. In some cases sterility or difficult childbirth is due to his displeasure.

parkasih ni si radja oedjijan pande: "begging the favor (of the spirit) lord clever in ordeal." An ornamentation of marriageable girls with jewelry and flowers for the satisfaction of the spirit. If pleased he will test the suitors to indicate which of them are worthy.

parkasih ni si radja ihat manisija: "begging the favor of the lord binder of mankind." This spirit is the ruler of the large rivers. Every new-born child is introduced to the river spirit by the *datoe* who begs the spirit to pardon the child's nakedness. In order to be sure that the spirit is satisfied a substitute for the child consisting of a young banana inflorescence and *roedang* ("sacred herbs") is thrown into the river to "drown." This is one of the ceremonies collectively called "*boewang djakka.*"

parkasih ni si pangalang bosi: "begging the favor of (the spirit) controller of iron." A ceremony of those who work iron. A small image (*pagar pangalang bosi*) is made as the habitation of the spirit, which is "fed" with offerings. The object is to gain power over iron, so that it will not do one harm and will be obedient to the wish of the worker.

parkasih sa moela djadi: "to beg the favor of (the protector of) the beginning of being." The *pagar moela djadi* is worn in the hair by pregnant women until after childbirth. (The offerings to the spirit of this pagar are not to be confused with the now discontinued worship of *Moela Djadi na Bolon*, the great creator of all things.)

parkasih ni hata boedak: "to ingratiate oneself by the manners (lit., 'speech') of youth."

pagar si toenggal medangedang: (to attend to the) protector "powerful one roving hither and yon."

pagar si toenggal moeoloeol: to attend to the protector "powerful one at the place of burial." This is a *pagar* consisting of a carved tree-fern trunk. It is reputed to be very powerful as a guardian of sacred and prohibited things. It is placed upright in the ground (like a post) at the burial place of the chiefs and is "the companion" of the *pagar si biaksa.* The latter, which may or may not include an image, consists mainly of a great Chinese jar containing remains of the human sacrifices of olden times. The two *pagar* are so closely associated that they are often referred to as a single one, under the name *pagar pondom moeoloeol,* but at the ceremony of sacrificing to them each receives its own offerings and prayers. (See the notes on *pagar si biaksa, pangoeloebalang si pondom oeoloeol,* and the descriptions of Pls. XII–XV.)

pagar si tombak kala: (to attend to the) "protector" (against the dangers of the) "forbidden forest" (lit., "the forest of the scorpion"). Especially awesome places in the original forest, where there are trees and plants of strange form, where the sound of invisible running water can be heard, and men are afraid, are sacred to the scorpion and are forbidden. If it is necessary to go near them, the protection of the *pagar* is needed.

si adji pilok-pilok: (to make) " the magical controller (amulet) for embraces."

pagar bahbah: (to attend to the) " protector against floods."

pagar si goendja polong: (to attend to the) " protector of the abnormally pregnant " (i.e., of women with disorders that have occasioned miscarriages or unusual presentations at childbirth).

mamele begoe ni pagar: " to make offerings to the spirits of the protectors."

begoe ni pangoeloebalang: (to make offerings to the enslaved spirit of a human sacrifice). The word *pangoeloebalang* ("leader in war") refers to two related but distinct things: (1) the actual stone image which is inhabited by a spirit procured by human sacrifice; and (2) the enslaved spirit haunting any device which serves as a

protector and at the making of which a human sacrifice was required, whether the actual device be called *pagar, pangoeloebalang* or *toenggal panaloewan*. The first use of the word is that common in Karo and Simĕloengoen, where such stone images as those shown in Plates XVI–XVII are called *pangoeloebalang*, and the spirits inhabiting them are called *begoe ni pangoeloebalang*. This use extends into Asahan, where many kinds of *pagar* used to be made as protectors against the Simĕloengoen *pangoeloebalang*. The second use is that more usual in Asahan, where the *pangoeloebalang* is the actual spirit of the human sacrifice, regardless of what kind of image or object it animates. Therefore, the *datoe* speaks of *pangoeloebalang ni pagar*, "spirit of the protector," etc. In addition to several types of *pangoeloebalang* listed elsewhere in this enumeration there is one which is supposed to guard the growing crops (*pangoeloebalang soewan-soewanan*).

begoe ni na haenggalan: (to make offerings to) "the spirits of the infant's burial place" (underneath the house). Plate XXIII shows a drawing by Bidin in which the chief *pagar* of a house are named, and their position shown. Enumerated among the *pagar* is the *haenggalan*, represented in the drawing by a little mound under the center of the house, with the sides kept in position by staves driven into the ground. The *haenggalan* was a regular place for making offerings and an essential part of a permanent house, so that at least one child had to be buried under the house of a chief. Sometimes the tumulus was surrounded by an inclosure similar in construction to a *djerat* ("grave-house"; see Bartlett, 3, p. 3) which prevented disturbance by the domestic animals under the house.[33] Only a new-born child (*anak baroe lahir*) was buried at the *haenggalan*.

[33] Joustra (8, p. 168) says that the Karo Batak bury the corpses of young children under the house or burn them immediately through fear that the *datoe* may use the bodies to make a magic preparation, *poepoek*. He does not mention any worship or offerings to the spirits of the dead children, nor does J. H. Neumann (22) in his exhaustive study of the Karo places of offering. Kruijt (10, p. 393), however, says that it is reported of the Karo Batak that they especially worship the souls of still-born children or of children who died before teething, in this sense only, that if after the death of such a child some other member of the family falls ill, it is blamed on the soul of the child. A small house is then made for the soul, and offerings are brought to it. It

begoe ni parsimangotan: (to make offerings to the) "spirits at the burial place" (of those whose *tondi* have become *simangot*, i.e., integrated souls, with the personality of the living person).

begoe na mate di langlang: (to make offerings to the) "spirits of those who have died away from home" (and whose bodies may not have been buried, or at any rate are buried in a strange place).

begoe ni na mate hoedipar: (to offer to the) "spirits of those who wander away to die" (or are lost and die).

begoe ni djinoedjoeng: (to offer to the) "spirits of the place above the head." The guardian spirit called *djinoedjoeng* has been discussed at some length under the heading *mambere pandaongan*. In Asahan the pagans regard the *djinoedjoeng* as a guardian spirit, communicating to its possessor the wishes of the ancestors and gods. It requires people to do things that are bothersome, and the sacrifices to it are a nuisance. Consequently, not everyone wants a *djinoedjoeng*. Nevertheless it is not terrifying, nor abnormal, and its function, under Muslim influence, is transferred readily to the four spiritual guardians of the soul discussed under *hata na toloe hata na sada*. It was, therefore, a surprise to the writer to find that the Karo Batak (near Bĕrastagi) referred to the *djinoedjoeng* as a fearsome and powerful demon of mountain peaks, old forests, and such places. It was as far as possible from their wish to be possessed by it, for it was evil and terrible. They made offerings to it when they went into its haunts, for propitiation, and to the end that it might stay in the wilds where it belonged. Such is the nature of the offerings on little altars which visitors see at the crater rim on the volcanoes Si Naboen and Si Bajak and the *sirih* leaves placed in cleft wands, which one will find wherever people have been gathering produce

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is reported of the Toba Batak (Warneck 27, p. 75) that when a child dies who has not yet cut its teeth it is buried in the village, under the eaves or behind the house. Its *begoe* receives no attention; it is said of such a child, "I have thrown it away." When there is sickness in the family the *datoe* often says that the child's *begoe* demands an offering, which consists of cooked rice, some vegetables and a little buffalo milk. The custom is distinctly similar to that of the Pardembanan Batak, but there seems to be a less definite cult of the spirit of the dead child, such as there was in Asahan at the *haenggalan*.

in the mountain jungle or otherwise intruding upon the premises of the mountain spirits. (The writer's Karo companions lingered to make such offerings to atone for the gathering of botanical specimens on the mountain tops.[34]) The ideas picked up by the writer were so greatly in opposition in the two districts that it will have corroborative value for the correctness of both to present for comparison the writer's findings for Tanah Djawa (in the Siměloengoen region between Asahan and Karoland), together with the information given for all districts by other observers.

Joustra (8, pp. 152, 167), writing of Karoland, specifically classifies the *djinoedjoeng* with the spirits of those who die a sudden death (*mate sadawari.*) He says that it may act as intermediary (*pĕrkĕntas*) between a *goeroe* and the spirit world. A *goeroe* can enter into communication with the souls of the dead only if he has first been possessed by the *djinoedjoeng,* in which event there will be a curious whistling sound in the throat. In Joustra's experience the *djinoedjoeng* had occurred as a protective spirit only a single

[34] It is of course not to be inferred that no other spirits are offered to in the same way on the Karo mountains. Beside the *djinoedjoeng* spirits of at least one other category, the *omang,* receive offerings. Westenberg (quoted by Kruijt, 10, p. 509) says that the *omang* correspond in a way to the Dutch hobgoblins. They are dwarfs inhabiting the mountains, who marry and increase their race. They differ from people only in that their feet are turned the wrong way. Their character shows a strong mixture of good and evil. They do not like to have people who ascend their mountains forget to give them a satisfactory offering. He who climbs Si Bajak, for example, does well to offer a white chicken, lest the *omang* bombard him with stones from above. The *omang* like to abduct handsome young people with whom they sometimes live for several years before they release them. In Toba the idea of the *homang* seems to be about the same. In Asahan there are many legends of the *homang,* which is said to have been very similar in appearance to a human being, but to have lived in the woods like a wild beast, more like a *mawas.* It was not a *mawas* (the miscalled orang-utan) because it had long black hair instead of cinnamon-red hair. It was larger than the *siamang,* with which the Batak are all well acquainted. "It has been several generations since one has been seen," but what is reputed to be the hair of one is preserved on one of the ceremonial spears (the one called *hoedjoer*) at Silo Maradja. The hair has every appearance on superficial examination of being human, and leads one to suspect that the Batak were preceded in the more eastern part of their range by a more primitive people whom they exterminated. Needless to say, the *homang* in Asahan is a lowland as well as a mountain spirit. Tradition has it that its corporeal ancestors could be, and were, killed off.

time. It was generally, on the contrary, an arch-demon. Neumann (17, p. 36; 18, pp. 363 ff.), writing of the Karo Batak of the Deli Doesoen, says that the *djinoedjoeng* is properly a spirit of the old forest on the mountains. (This observation agrees with the writer's own.) One *goeroe* told him that the *djinoedjoeng* was the spirit of a bad person whom the gods refused to receive. He was unable to see that this bit of information was consistent with other beliefs of the Karo regarding their gods. He secured positive information, however, that the *djinoedjoeng* in Karoland was the spirit of a deceased person, for the belief exists that one can become a *goeroe* only if his *djinoedjoeng* is the *begoe* of a *goeroe*. This is totally at variance with the belief in Asahan, where the *datoe* himself does not know whether or not the spiritual messengers of the gods and ancestors are the spirits of the dead. They are *begoe*, and that is all he knows. In Asahan the spirit of a dead *datoe* (= *goeroe*) becomes *simangot*, just as does the spirit of any other person of high degree. Neumann also reports the curious belief in the Karo Doesoen that the *djinoedjoeng* of a man is female, and vice versa. Therefore, it would seem, the *djinoedjoeng* of a male *goeroe* must be the *begoe* of a female *goeroe*. In Asahan, where there are no female *goeroe* (although a female may be *sibaso*, "a medium") it is obvious that this belief would be out of accord with the cult of the *djinoedjoeng*, and no trace of such a belief was found. Neumann says that the relations of men and their oppositely sexed *djinoedjoeng* are sources of trouble, but gives no details.

Neumann, however, has given some data indicating that even in Karoland the *djinoedjoeng* is sometimes considered (as in Asahan) a not undesirable thing to have. For instance, he says that one who has a *djinoedjoeng* (not everybody gets one) may become ill if it leaves him, and that it is then recalled, just as the wandering soul is recalled. It is located by a male *goeroe* and called back to its possessor by a female *goeroe*. The ceremony of calling a *djinoedjoeng* back to the house is called *pĕroemah djinoedjoeng*, and is exactly the same as the similar ceremony calling the house ghosts home, *pĕroemah begoe djaboe*. The same offering is used (*manoek tĕgas*), and it is not clear that a *djinoedjoeng* of such desirable qualities should not be classed with the desirable house ghosts

(*begoe djaboe*). Finally, in Karoland one sometimes hears of a person being pestered by three or four *djinoedjoeng*. Under such circumstances the *djinoedjoeng* is clearly not the equivalent of the conscience, as it seems to be in Asahan. One can only conclude that the Karo Batak have confused traditions regarding the *djinoedjoeng*, and that their own ideas have become mixed with the more southern conceptions. As will be seen, the traditions of the southern Simčloengoen Batak are also mixed, but generally agree except for details with those of their near neighbors, the Pardembanan. The writer was able to secure data only in Tano Djawa and Siantar, where many natives said that a *djinoedjoeng* was an evil spirit that annoyed people and interfered with their affairs. Others, including the *datoe*, had essentially the Pardembanan ideas, including the recognition of four "nations" of *djinoedjoeng*. The attribution of the "nations" to the marriage septs was as follows:

(1) LIST FROM TANO DJAWA	(2) LIST FROM SIANTAR
Djinoedjoeng Si Manoek-manoek	Djinoedjoeng Si Manoek-manoek
marga Sirait	marga Si Rait
marga Sitoroes	marga Si Toroes
marga Boetar-boetar	marga Boetar-boetar
Djinoedjoeng Soeroengoen	Djinoedjoeng Soeroengan na godang
marga Sinaga	marga Margolang
marga Soetion	marga Si Toppoel
marga Saragi	marga Pandjaiton
marga Masopang	marga Mandjoettak
marga Manoeroeng	marga Panggaroean
	marga Si Tanggang
	marga Hoeta Tobing
	marga Si Toemorang
	marga Hoeta Oeroek
	marga Si Galanggang
	marga Hoeta Galoeng
	Djinoedjoeng Si Moeli Ate
	marga Manoeroeng
	marga Si Legar
	marga Nainggolan
	marga Si Damanik
Djinoedjoeng Si Legar	Djinoedjoeng Si Legar
marga Pandjaitan	marga Seragi
marga Sidajong	marga Loebis
marga Marpaoeng	marga Hoeta Barat

marga Si Agian
marga Margolang
marga Si Dahotang
marga Si Toppoel

Djinoedjoeng Debata Isori (or Naga Isori)
marga Poerba
marga Siboeca
marga Sidamanik

marga Si Aroem Pait
marga Si Agian
marga Si Poldas

Djinoedjoeng Oppoean
marga Samosir
marga Hoeta Soit
marga Hasiboean
marga Pasariboe

Djinoedjoeng Hoemala Sori (or Debata Sori)
marga Si Boeca
marga Poerba
marga Simbolon
marga Mandosi
marga Si Naga

The Pardembanan list (see p. 20) and these two Siměloengoen lists show lack of agreement in details, but the latter do show that the concept of the *djinoedjoeng* as an advisory spirit is very generally held in these districts (Tano Djawa and Siantar). One of the two Siměloengoen lists agrees with the Pardembanan in having *djinoedjoeng* of four kinds, and in three cases these are given identical or equivalent names. The third and longest list is padded with the names of many Toba *marga* of the most recent immigrants into the Siantar district, and is probably the least valuable of the three. It lists six kinds of *djinoedjoeng*, four of them identical with those of the other Siměloengoen list, and two additional ones. The latter, however, probably fall away. One of them is Djinoedjoeng Si Moeli Ate. It will be noticed that this spirit is attributed to *marga* Si Legar, although there is a Djinoedjoeng Si Legar also. Probably Djinoedjoeng Si Legar and Si Moeli Ate are identical. As to the other accession to the list, Djinoedjoeng Oppoean, it is to be suspected that the *datoe* really had no information for the *marga* listed for it, and meant to indicate merely that their advisory spirits were sent by the ancestors (*oppoe*). The failure of the same *marga* in different neighboring localities to receive its *djinoedjoeng* from the same "nation" of these spirits may indicate that something besides *marga* really determines what *djinoedjoeng* comes to a man, or else that the cult of the *djinoedjoeng* is so far forgotten that accurate information regarding details can no longer be obtained.

To turn now to Toba, the center from which Batak culture in the main radiated to the other districts, there is a great lack of information. That the *djinoedjoeng*, if generally known in Toba at all, must be of only the slightest importance, is indicated by the fact that Warneck (27, 1912) discusses the religion of the Batak at great length without finding it necessary to mention it at all. If the *djinoedjoeng* conception originated in Toba, it has apparently become lost there. At the north and in the lowlands of Asahan and Simĕloengoen the traditions greatly diverged, but influenced one another subsequently by cultural contacts. This suggestion will serve as a working hypothesis if anyone should wish to inquire more minutely into this interesting element in Batak religion.

begoe ni di pangoembari: (to offer to the) "spirits of those who come to the household altar." Any part of the house or piece of furniture which serves as altar to certain classes of spirits is *pangoembari*. The heavy beam lengthwise down the middle of the old-fashioned house was so called. In the flimsy modern house it may be a brass or wooden eating-stand.

palao begoe mongop: "to attend to the lurking evil spirits."

mamogang ari na pitoe: "to control (lit., 'hold in hand') the seventh day" (i.e., the unlucky day on which nothing important should be undertaken).

boraspati ni tano: (to make offerings to the) "earth spirit" (who becomes visible in the aspect of a lizard, and brings good fortune to the household). He is one of the few consistently good spirits, also called *djoembalang tano*. He will undertake the control of minor captive spirits who are pressed into service as "protectors," as, for example, the spirits of biting ants that are bidden to bite the spirits of sickness.

hantoe ni ladang: (to make offerings to the) "spirits of the clearing."

hantoe ni sinoemba: (to make offerings to the) "spirits of sacred wild places." The spirits are generally called *sinoemba*, rather than the places they haunt.

pangoeloebalang si loempat doehoel-doehoel: (to offer to the) "spirit of the human sacrifice jumping house-ladder rungs."

pangoeloebalang si na borilla: (to offer to the) "spirit of the human sacrifice *si na borilla.*"

pangoeloebalang sanggapati na bolon: (to offer to the) "spirit of the human sacrifice great executer of judgment." This *pangoeloebalang* will go across rivers into distant places to bring death or other calamity to the enemies of its masters. It is used to commit murder at a distance, and is greatly feared.[35]

pangoeloebalang si pondom moeoloeol: (to offer to the) "spirit of the human sacrifice haunting the grave-house." The *pondom* (generally called *djerat;* see Bartlett, 3) is a small house erected over a grave (*oeol-oeol*). See the items "*pagar si toenggal moeoloeol,*" "*pagar si biaksa*" and the descriptions of Plates XII, XIV–XV.

parmanoehon: (augury by the position at death of the sacrificial cock and the appearance of its organs). Treatises on the subject are among the more common of the ancient books (*poestaha*) written on the inner bark of trees.

patortoron ni hoela-hoela: (to lead the dancing at the invocation of the ancestors in the female line). For each ruling marriage sept (*marga*) there is a preferred (mandatory, if chiefly standing is to be retained) sept from which wives are to be taken. This *marga* is the *hoela-hoela.* The ceremony of invoking the ancestors of the *hoela-hoela* stem is frequently held, in order to secure guidance in the solution of difficult problems or to ascertain that the *hoela-hoela* will not be offended at any contemplated action. An altar (*andjapan*) is built for offerings to the ancestral spirits of the *hoela-hoela.* At one end of it a seat is made for the medium, *sibaso.* After the offerings have been prepared and placed within the altar by the *datoe,* the *sibaso,* and the *soehoet na bona-bona* (principal person in whose interest the ceremony is undertaken), the *hoela-hoela* ancestors and the spirit of the *datoe*'s *goeroe* are invoked by the *datoe.* Then, as the orchestra plays, the *datoe* dances on the dancing mat in honor of the spirits (Pl. XXIX,

[35] According to Warneck (26, p. 179), "*sanggapati,* ein Götzenbild ähnlich dem *pangoeloebalang,* wodurch man einen Feind verderben will." Fischer (5, p. 129) lists a *poestaha* from Mandailing (Leiden Mus. 741/7) as "*poda ni sanggapati na godang* (Vorschrift des grossen *sanggapati*)."

Figs. 1–2). He is joined after a time by the *radja* (if, as is generally the case, the latter is the *soehoet*) and then by the *sibaso*. Afterward any others who are intimately concerned with the affair in hand join in. The dancing (which is generally, but not always, at night) continues for a long time. At length all drop out except the *sibaso*, and retire to a place among the onlookers. If the séance is to be a success, the *sibaso* finally shows evidence of possession. It is believed that when he falls into a trance-like state, in which he continues to dance, one or more of his subsidiary *tondi* leave his body, making place for the spirits which have been invoked. When the latter enter him, his graceful sinuous dance movements cease, being succeeded by wild hops and labored breathing. At this stage the orchestra changes its tune, the *datoe*, *radja* and other qualified assistants quickly remove the clothing of the *sibaso*, fumigate his body with smoke of burning benzoin from the *parasapan*, and reclothe him in freshly fumigated ceremonial clothing. He now wears an heirloom cloth (*kaen poesaka*) around his hips. The upper part of his body is bare. In his hair are placed *roedang* and long wands of bamboo extending horizontally a couple of feet in front of his face. These are adorned with red Hibiscus flowers (*hatoenggal*), which are indispensable to the ceremony (see Pl. VIII). The wands serve as a frame to support a cloth (*hijo poetih*, *hijo na lopak*) which later in the ceremony is placed over the head of the *sibaso*, when he ceases to dance and is led to his seat before the *andjapan*. It is important that the *sibaso* be purified and adorned at precisely the right stage. If he is allowed to hop too long, he falls into what appears to be an epileptiform seizure and the séance is spoiled. If, on the other hand, he has not danced long enough, his trance is too greatly disturbed and the proceedings are greatly prolonged. It is considered desirable that he should dance again after purification. When his step becomes uncertain he is led at once to the altar and his head covered with the white cloth. He should now sway slowly back and forth, sidewise, like an elephant swinging its trunk. If he has been possessed by the right spirit he will eventually begin to speak. The language used is the test of whether some mischievous trespasser is speaking or not. The ancestral

spirits are expected to use the old Toba dialect, and to state their names.

patortoron ni boroe golom ari: "to arrange the dance of" (the spirit) "dame seizer of the day." There is a *pagar si golom ari.*

si mirasopang: (?)

si ari golap: (to offer to the spirit) "dark day," [36] if the omens are bad.

pangoeloebalang ni andarsang djongkal doea djari: (to offer to the) "captive spirit of *andarsang* (measuring cup? scales?) span-of-two-fingers."

si poetar boewa: (to offer to the spirit) "who turns the fruit around."

si boerhat hasohor: (to offer to the spirit) "blessed thanks."

si loemanggoer: (to offer to the spirit) "thunderer."

si toppas dolok: (to offer to the spirit) "shaker of mountains." This is the earthquake spirit.

si biaksa: (to offer to the sacrificed human being) *si biaksa.* To make the feared *pagar si biaksa* certain preparations of the body of the human victim (constituting the *ramoewan* of the *pagar*) were buried in a jar beside the *pagar si pondom moeoloeol,* at the burial place of the chiefs. The two *pagar* were "companions." They were reputed so powerful that smaller *pagar* were prepared to guard certain individuals against them, and these counter-*pagar* bore the same name as the great ones. The efficacy of the smaller *pagar* depended upon magical incantations (*tabas*), that of the large *pagar biaksa,* a community possession, depended of course in the first place upon the magic which forced the spirit of the sacrificial victim to do the bidding of the slayers, but after the fundamental ceremony of making the *pagar,* upon keeping the good-will of the spirit by secondary sacrifices, some of which came at set intervals (once a year) and others when decreed by the *datoe.* At no time is the *pagar si biaksa* [37] willingly shown to an

[36] Fischer (5, p. 133) lists as one of the chapters of a *poestaka* supposed to be from Pakpak (Leiden Mus. 985/30) "*poda ni ari golap* (what we can predict from the darkening of the day)."

[37] Neumann (22, p.524) mentions a Karo place of offering which is certainly the equivalent of the *pagar si biaksa.* It is usually located on a hill or under a great tree and consists of a pot containing a magic preparation. He says

outsider or even mentioned. The writer, however, had an opportunity to assist at the removal of an ancient one from an abandoned village site (see Pls. XII–XV) to a new location, where it was buried after much drumming and the making of elaborate offerings. In the nine years since it was deserted the old village site had become covered with a dense second growth, so the exact place of burial had to be located by blazes on the trunks of trees. The "companion" *pagar*, a carved palm-stem (*pagar si toenggal pondom moeoloeol*) had fallen, but was not badly decayed and was also transported to the new site. The *pagar si biaksa* was *kabosaran*, i.e., "pertained to greatness," and was of such sanctity that it could be touched with impunity only by the *radja*, the *datoe* and myself (adopted as the *radja*'s brother). It would have been *pantang* (forbidden) for me to touch it had not the *datoe* been certain from various happenings that I was protected from harm by powerful *djin djaoe*, foreign demons!

The *pagar si biaksa* was a handsome green-glazed Chinese jar, buried so that its top was several inches below the soil level, covered with a broken lid and by some old Chinese plates. It was practically full of earth, however, carried in by worms or insects. There were some small bones visible, but the *radja* and *datoe* were so nervous about any tampering that I had to forego finding out what the jar might contain besides earth. The small bones near the surface were doubtless those of relatively recent offerings,

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the most general name is *sibiangsa*, of which he can give no explanation. The preparation is much feared, and Joustra says in his dictionary that it is forbidden to take it into a house on account of its destructive properties. It seems to be generally distributed in Karoland since it was reported to Neumann from the Doesoen, the High Plateau and the Laoe Renoen district. He gives many interesting details concerning it, among them that it is the special protector of a new colony, which often has so few people as to be otherwise practically defenseless during the period of greatest importance of the *sibiangsa*, that transplantation of the *sibiangsa* into the village of the enemy will harm them, unless they know how to make the proper offerings to it and thereby adopt it as their own, and that it is especially associated with the idea of dissolving or melting. An invocation to it reads: *O nini, radja kělěngasěn ras kělěboeren! Lěngas ras lěboer kasakai si la měhoeli* ("O ancestor, lord dissolver and smelter, let everything dissolve and melt that is not favorable").

and the original contents (generations old) had probably disappeared through decay. Near the surface of the ground above the jar (concealed only by a little brush when the old village site was visited by me in 1918) and on top of the plates was a nicely made brass dish reputed to have been the work of a local *pande tombaga* ("one skilled in brass") long ago. In this bowl it was customary to place the yearly offerings, one of which was the blood of a dog (*moedar ni asoe*).

When the offerings were made in 1927 (for the first time in a decade) they were slid into the green jar itself, by an assistant *datoe* who received a most careful purification before the ceremony. He and his clothing were smoked with burning gum benzoin while the orchestra banged and wailed and the spectators danced. His head and hands were then tied tightly in fumigated white cloth, and he was given a fumigated new wooden paddle with which to push the food down a banana leaf trough into the jar. When the feeding of *si biaksa* was through, *si toenggal pondom moeoloeol* was thoroughly smeared with his offerings of food. The face of this image before the ceremony was covered by a mask made by painting features roughly on a large palm spathe. During the feeding the *datoe* recited invocations to the *pangoeloebalang* of the *pagar*. At the close, while the orchestra still kept up its din, the purified assistant *datoe* whetted a sword against the blade of a spear making a sound particularly grateful to the *pangoeloebalang* and grimly reminiscent of the old days when the whetting would have been followed by slaying— perhaps only of "the most ill-omened dog." Who knows! (See the series of illustrations in Pls. XII–XV.)

si hotang na repat: (to offer to the spirit) "hanging rotan." Used in Simĕloengoen, according to Tideman (25, p. 165), to cripple the enemy.

si roedang gara: (to sacrifice to the spirit) "sacred red herb."

si bogang: (to make offerings to) "the wounded" (a spirit).

si pinggan moedik: (to offer to the spirit of) "the plate *moedik*."

parhabahabaon: (to offer to) "the spirit of the typhoon."

si adji hihir: (to offer to the spirit) "lord of the tooth-filing."

si battak nanggar: (to offer to the spirit) "resounding hammer."

si patoendoek: (to offer to the spirit) "striker down."

pagar sa hoeta malmal: (to attend to) the protector of an unfortunate village.

sa hoeta sori manippoel: (to attend to the protector of) "a village of coveted good fortune."

parsaoe laoeon oeras: "to secure purifying water."

parhitaron sahat sahat torbang sahat ni begoe na hadjomoehon na paniseon na sorpoon na sorloepon boeha radjohi: "to indicate by shuddering the presence of all kinds of flying things, the presence of a lurking spirit at the water bamboo, the presence of those to whom one (when startled) says 'Who is there?', of those that terrify into illness, of those that cause convulsions with vomiting."

mambere sir: "to make sacrifices to sensual desire." Desire is treated by the Batak as though it were a spirit that comes and goes. If it stays away, it is recalled by much the same procedure that would be used for the recall of a soul. It is not, however, looked upon as one of the seven *tondi*, which at death become *begoe*, for the *begoe* themselves have *sir*. It is a temporarily separable attribute of *tondi*, but has no permanent existence except as it pertains to man or *begoe*. In one of the lists of the names of the seven *tondi* one finds the name Si Meserser. Specific inquiry, however, failed to indicate that this soul has any monopoly of desire. Si Meserser was probably so named because it was supposed to be the *tondi* with the most *ser* (= *sir*) or a *tondi* similar in character to *ser*. The writer at first thought that the personification of *ser* might indicate that the seven *tondi* were originally personifications of seven attributes of the soul, but this theory does not accord with the present belief of the Batak. In the study of a religion like that of the Batak one is frequently perplexed by the problem of how much is primitive belief and how much consists of vestiges of older more elaborate systems.

parsahabaton: "to make friends" (after hostility or unfriendliness).

parnoengnoeng si arsik ngarngar: "to concoct (the poison) slowly wasting away."

si patoeroen oedan tilik: (to make the magic preparation) "the bringer-down of rain indicative in augury."

pardjomoehon: (to pour the water for ceremonial purification from the bamboo called *djomoeh*).

pargoeroean besan ni begoe banggil: (to make) "a place of instruction for the relatives of the hump-backed spirit."

pangidahan si poenpoen tali: "one having power to see" (the spirit) "end of the rope."

pasapoekko (= (?) *pasapoerhon*) **boeha horbangan:** "to give in marriage by opening the door." The *datoe* arranges the payment, to the father of a girl, of the first marriage gift, called "the door-opener."

pinangan ni ara: (to make) "receptacles for offerings of betel nut to invited spirits" (*hantoe ara*). The Batak make three objects of bamboo, all of which look alike, the *pinangan*, receptacle for the betel-nut offerings, the *parpagaran*, receptacle for protective devices, and the *sakkak ni manoek*, nest for the hens to lay in (see Pl. XXI). They are made by splitting an internode of a bamboo pole or stick into a dozen or more splints, held together by a node, which does not split. The splints are splayed out to form the ribs of a conical basket which is completed in the usual way by interweaving with split *rotan*, strips of flexible bark or braided *lalang* grass. The completed object is an inverted conical basket at the top of a pole of any desired length, which may be thrust into dry ground or into a stream bed, or tied beside a house post. *Pinangan* with offerings to the friendly invited spirits *ara* are set up at the initiation of important undertakings. These serve as notices to the spirits that ceremonies or festivities are to be held, and as informal invitations prior to pronouncing the invocations.

parlindoengoen si begoe noernoer: "to render men invisible to the spirit *noernoer*." The *begoe noernoer* is a powerful evil spirit that comes to earth from heaven. It must have food and will accept offerings if men are magically hidden or rendered invisible. Otherwise it takes men. It comes at time of pestilence or epidemic. The *tabas* of the magic includes the words "May the spirit *noernoer* not see men, but only the food devoted to him."

si toppas dasor: (to offer to the spirit) "blower-away of the drying place" (of the harvested grain).

parkoensi: (to offer an "unlocking" sacrifice to the spirit "locker" if a patient is unable to urinate or to ease himself).

mangambangi[38] **boewang mamis si rai hatoendoehanta**: "to make an offering of sacred herbs (to friendly spirits who are asked) to expel the disease spirit shaker at the place of our being cast down" (with nervous tremors).

mardjoring si adji poeltong: "to administer the laxative medicine controller of the binder" (for those "who get rubber (*getah*) in their stomachs" from eating certain fruits).

pamoehiton si adji tipoel-tipoel: (to gather, as seed for the next harvest, the first grain which is ripe and ready to drop). Such grain is forbidden food (*pantang*).

mamambangi[38] **si adji boerboer**: "to make offerings of sacred herbs" (to the spirit) "controller of wood borers." Various boring beetles and other insects are very destructive to bamboo or wood used in construction. Whatever means (e.g., smoke, heat) is taken to control them is viewed as merely placed at the disposal of a spirit.

tambar sambolit: (to prepare) "the one-colored purifier"

[38] In Bidin's list *mamambangi* (*mangambangi*) occurs twice, but as a special ceremony for a particular purpose both times, whereas the ceremony is frequently held in a generalized form. It is the making of a hanging offering to household spirits. The procedure is at first not greatly different from that used in the *mangoeras* ceremony (see p. 14 and description of Pl. XXII). Two banana-leaf trays are made exactly alike, the offerings differing slightly from those used for the *mangoeras*. If one sits opposite the long side of the tray, there are seven (instead of five) streaks of coconut oil at the upper left and lower right corners. Corresponding to these at the upper right and lower left are seven streaks of oily soot (*badja*). Exactly as in the *mangoeras* offering are the three kinds of *roedang*, the three colors of rice, and the prepared *sirih* leaves — a complete set of all these on each side of the midrib. Over the midrib at either end of these offerings is a ball of rice flour dough (*si porah*). A distinct difference from the *mangoeras* offering is now introduced. Over the whole tray the *datoe* places fronds and partial inflorescences of the little palm called *andoedoer* (*Caryota furfuracea*), which is common wild, and also cultivated as a sacred plant. Aside from its ceremonial use, the *andoedoer* is of only trivial significance as a useful plant. In many respects it is similar to the sugar palm (*bagot*) and a small amount of palm wine, used only as offerings to the spirits, was formerly prepared from its sap. Nowadays this wine is

(used for girls after the first menstruation and for women after childbirth).

si rappas toenangan: (to placate the spirit) "seizer of virgins."

parsiholsiholon: "to bring about passionate longing" (in one's beloved, a kind of *dorma*).

parnipinipijon si balik limbas: (to cause one to be possessed, as in a dream, by the spirit *si balik limbas* which causes bewilderment, a terrifying feeling of having lost the way on branching paths and of traveling back in the same direction from which one has come, or of being followed by invisible malevolent beings).

si poetar balik oeras: (to control the spirit) "turner-back of the purification." This spirit turns the effect of purification against those who carry out the ceremony, to the advantage of the exorcised evil spirits.

parsoesion: "to be a cleanser."

pahabang losoeng: "to make the rice-block fly." A miracle by which the old-time *datoe* proved his power. (The country has now become so full of adverse foreign spirits that this magic is no longer successful!)

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replaced by sugar-palm wine (see the writer's article, 2; also 4, Fig. 106) which is placed in two bamboo tubes, *pandoer*, at the top of each tray. The two complete offerings (now called *pangambangi*) are now placed one on top of the other. The *datoe* holds them on his outspread hands before the householder in whose behalf the ceremony is conducted, and calls upon the household spirits (*ambangan*) to attend. Among the *ambangan* are reckoned the *djinoedjoeng*. The two trays are placed at the threshold, where the special attention of the threshold spirits is called to them. One is then carried to the fireplace, where the spirits of the hearth and their friends are specially addressed. Leaving this tray for the moment, the *datoe* returns to the one which was left at the door and takes it down the house-ladder, where he invokes the spirits of path and ladder. He brings it again into the house, places it on top of the one which was left at the hearth, and rolls up both into a tight, neat bundle, the *pagar mangambangi*, which is suspended under the eaves, over the door, or over the hearth, as determined by the *datoe*. The natives sometimes refer to *mamambangi* as though it were a ceremony for expelling evil. Its ultimate object is purification, which is attained through the help of friendly household spirits who receive the offerings as a recompense for their diligence and coöperation.

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VERNACULAR INDEX

Since there is no logical arrangement of items in Bidin's manuscript it has seemed desirable to make an almost exhaustive index of vernacular words and phrases in order to insure ready access by the reader to all that the article contains on a given subject. This vernacular index will be followed in Part II by a very brief English index which will give a reader not particularly conversant with Sumatran ethnology a key to the vernacular indexes of both parts. Thus the English index will contain important catch words such as "soul," under which the reader may find references to *tondi*, *simangot* and *begoe*. If the page references from these words are looked up in the vernacular-indexes, nothing of importance regarding the theory of the soul can be overlooked.

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pargoeroean besan ni begoe banggil 61
pargotong-gotongon 10
parhabahabaon 59
parhahap 39
parhapoeran 10
parhata boedak 44
parhitaran 60
parhoendoel-hoendoelon 10
parkasih 44
parkasih ni hata boedak 47
parkasih ni si malang ate 10
parkasih ni si pangalang bosi 46
parkasih ni si radja bobang 46
parkasih ni si radja ihat manisija 10 46
parkasih ni si radja oedjijan pande 46
parkasih sa moela djadi 10 46
parkoensi 62
parlangkahon 10
parlapik dorma 44
parlindoengoen si begoe noernoer 61
parmalim 15
parmanoehon 55
parnipinipijon si balik limbas 63
parnipinipiwon 45
parnoengnoeng si arsik ngarngar 60
parorot 43
parpagaran 61 xxi

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parpoeran-poeranon 9 10 45 xxv
parroemahan manoto-noto 14
parsahabaton 60
parsaoe laoeon oeras 60
parsiholsiholon 63
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parsili boeang-boeang 34
parsili magok 34 36
parsili na holong 35
parsili si paembar na bolon 35
parsilihi 36
parsimangotan 19 49
parsoentil-soentilon 9
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paspas 42
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patortoron ni boroe golom ari 57
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si patoeroen oedan tilik 61
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si poetar balik oeras 63
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si toppas dasor 62
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topeng 36 38 xxiv
topeng hoda-hoda 38
toppas dasor 62
toppas dolok 57
torping 38
tortor 38 55 57

PLATE I

Bidin Si Rait Holboeng (left) and his mother's *marga* brother Dorsang Si Toroes, Silo Maradja, 1918

PLATE II

FIG. 1. Datoe Silo Tonga and his nephew Bidin, at Silo Maradja, 1918. The *datoe* has just brought to the writer a collection of invocations inscribed on bamboo sticks, such as were used until recently in many places about the houses and fields. They accompanied *pagar*, or were often actually *pagar* themselves, having a little nick (*poesoek*, "navel") in the midst of the writing in which was stuffed an offering rich in *tondi*, attractive to a spirit, which would enter the bamboo as a habitation and find out its duties from the inscription.

FIG. 2. Datoe Silo Tonga in 1927. Although he no longer lives at Silo Maradja, he returned to officiate at a *kandoeri* ("ceremonial feast") held at the house of Si Djonggol, his nephew, brother of Bidin, at which the *marga* Si Rait Holboeng celebrated the return, on the same day, of Bidin and myself after an absence of nearly ten years. Silo Tonga, a sincere and estimable old pagan, is perhaps the last *datoe* in Asahan who is thoroughly schooled in the ceremonial which pertained in the old days to a powerful chief and to public affairs. The few old-time pagan chiefs and priests who remain live in relative poverty and degradation, the former nearly shorn of their authority, and the latter entirely so.

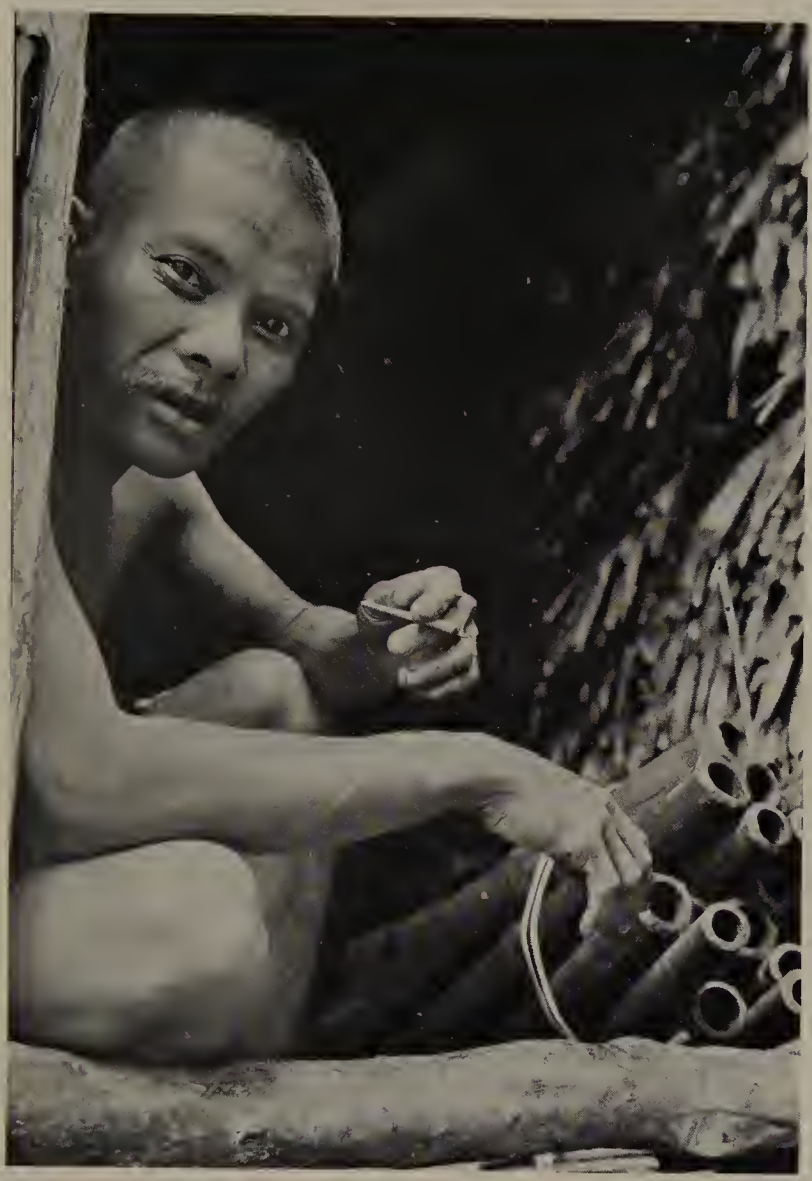
FIG. 1. Datoe Silo Tonga and Bidin, Silo Maradja, 1918

FIG. 2. Datoe Silo Tonga, 1927

PLATE III

Datoe Boerdjoe, in 1918 the only Pardembanan *datoe* to be found in the plantation *kampongs* of Asahan. He had lived in both Tano Djawa and Asahan, and at Boenoet had kept a *roemah bale* ("guest house") for pagan Batak, who, unless they had Muslim relatives, would not be received in a Muslim house. Boenoet, the location of the great factory of the United States Rubber Co., and headquarters of its scientific staff, receives visitors from all over the world, the most inconspicuous and the most interesting being the ragged people from the jungle who (in 1918) often trudged through, and, staying overnight with Datoe Boerdjoe, recalled legends of past days when Tano Radja (Tanah Radja Estate, now the location of Catharina Hospital of the United States Rubber Plantations) was a center of Batak life, and its still sacred hill, the *boekit kĕramat*, was the burial place of their ancestors, when Soengei Sikassim, now solidly planted to rubber, was a battle-ground with roving slave hunters from Siměloengoen or Batoe Bara, and Kisaran, now a little cosmopolitan metropolis with all modern improvements, was a *kampong* of three or four houses with bark walls and *atap* roofs. Several old pagans who stopped overnight with Datoe Boerdjoe wrote songs or invocations for the writer on "writing bamboo" (*boeloe soeraton*). A bundle of manuscripts is shown in the doorway. In 1927 the writer was unable to find Datoe Boerdjoe. The times had changed again, and even jungle visitors saved a little money for a ride on the motor bus, the *kĕreta gĕrobak*, so there was no more use for Datoe Boerdjoe and his *roemah bale*.

PLATE III



Datoe Boerdjoe, Boenoet, Asahan, 1918

PLATE IV

Temporary ceremonial inclosure around the chief's house at Silo Maradja, 1927. The final purification of the inclosure has not yet taken place. As soon as it has been purified, and all evil spirits have presumably been expelled by the *datoe*'s exorcisms and the throwing of purifiers (rice of three colors and lemon juice), the entrance under the arch will be closed to the demons by thrusting two poles into the ground to form an X (*silang*) with the crossing about a foot above the ground. The sugar-palm leaflet fringes of the fence and arch are believed to exclude evil spirits. They are called *gaba-gaba*.

PLATE IV

Ceremonial inclosure, Silo Maradja, Asahan

PLATE V

Altar (*andjapan*) in its elaborate form, as constructed when the gods, *debata*, and ancestral spirits, *padjoe-padjoean*, are invoked, and the latter are invited to communicate through the medium (*sibaso*) with their descendants. At the left is the platform on which the medium sits after he has danced himself into a state of trance. The offerings have not yet been placed within the altar, but it has been purified with burning benzoin and the entrance to the upper chamber covered by the white cloth (*hijo na lopak*) with which the *sibaso* will later cover his head. Just at the side of the altar proper is the sacrificial post, *borotan*.

PLATE V

Complete altar (*andjapan*) as used at invocation of the deified ancestors

PLATE VI

Closer view of the *andjapan*. This plate shows the construction of the medium's platform and the opening into the upper chamber just behind the place where he will sit. It also shows the *pining* (betel palm) inflorescences (*mange-mange*), of which one is always young (*moeda*) and one half-ripe (*simartomoerak*). At the right is Dji Maradja, the *radja*'s brother. Just at his shoulder is the tip of one of the inflorescences of *boenga siala*, tied to the corner upright. *Boenga siala* (*Phaeomeria speciosa*) is a gigantic plant of the ginger family with a tall naked scepter-like flowering stem crowned by the capitate rose-colored inflorescence. It is highly ornamental and fragrant, and is always used in the construction of the elaborate type of *andjapan*. The framework of the altar is box-like in shape. The four uprights are twice as high as the level of the platform, which is built at the level of the laterals of the frame. This platform is the roof of the lower chamber and the floor of the upper chamber. It is made of split bamboo, and covered with a pandanus mat. Hanging from the laterals is a palm leaflet fringe (*mare-mare*), which gives privacy to the spirits who come to the lower chamber. From the edges of the platform rise tall fronds of *rotan* (various species of climbing palm, *hotang*, the leaves of which are ceremonially known as *boeloeng bane*) or the similar fronds of Zalacca (*haloebi*). These are gathered together at the top and form the upper chamber of the altar. Extending obliquely upward and backward from the platform level is a gigantic frond of the sugar-palm (*boeloeng ni bagot*) which looks like the tail of an animal, and gives the whole altar with the mouth-like opening into the dark upper chamber in front a grotesque similarity to an animal. The sugar-palm leaf is the "path of the gods," *dalan ni debata*. The structure as a whole is highly ornamental. Tied in with the *rotan* leaves are branches with red Hibiscus flowers (*boenga raja* or *hatoenggal*). The fringe of palm leaflets forming the lower chamber is made from unexpanded fronds and is bright yellow. Of the two *pining* inflorescences which hang from the front uprights, one is removed from the as yet unopened spathe, and is yellow. Hanging from these posts are two bamboo tubes of palm wine stoppered with bouquets of sacred herbs, colorful because among them are the brilliant red and yellow cocks-comb (*Celosia*). The completed *andjapan* is a beautiful thing which gives the natives great esthetic enjoyment.

PLATE VI

Platform for the *sibaso* at front of *andjapan*

PLATE VII

The medium (*sibaso*) Si Djenar seated on his platform at the front of the altar, placing the offerings within the upper compartment, as they are handed to him by the *datoe* and assistants. Later, after he has danced and gone into a trance or ecstasy, he sits with his back to the opening. Offerings are placed in both the upper and lower parts of the altar.

PLATE VII

Si Djenar, the *sibaso,* before the altar

Plate VIII

Fig. 1. Si Djenar, the medium, seated in a state of trance before the opening into the upper chamber of the altar. In his hair are placed slender bamboo wands to which red Hibiscus flowers (*hatoenggal*) are affixed. These form a support for the white cloth which covers his head. At this stage of the ceremony all sorts of choice foods are spread before the medium, so that after each spirit possesses him, if it desires to utilize his body for the enjoyment of some delicacy that it liked while it was in this existence, the request may be satisfied immediately. The *datoe* and *radja* are attending to requests.

Fig. 2. The *hatoenggal* wands in Djenar's hair.

FIG. 1. The *sibaso* calling for food for the *padjoe-padjoean*

FIG. 2. The *haloenggal* (red Hibiscus) wands

PLATE IX

FIG. 1. Offerings ready to be placed in the *andjapan* (both above and below) as soon as the ceremonies start. As fast as they are made ready they are placed on plates or mats and covered with sacred herbs.

FIG. 2. Si Djonggol (left) and Mat Rohim (right), representing *marga* S Rait Holboeng (the writer's *marga* by adoption) and the *hoela-hoela*, *marga* Si Toroes, preside at the cooking of the *lomang* for the sacrificial feast. The *lomang* is made as follows: Glutinous rice (*poeloet*) is soaked in coconut milk and mixed with grated coconut. The mixture is strung along on strips of banana leaf, which are rolled into cylinders and inserted into bamboo joints of the right length. The joints are then filled up with coconut milk, and leaned against a green wood support before a hot fire which has burned down to coals. The joints are soon blowing off steam like a row of miniature volcanoes. They are allowed to boil dry, and then to toast until the bamboo chars on one side, and splits, exposing the banana leaf lining. Then the cooking is done. The bamboo is split away with a knife, the banana leaf picked off, and the lightly browned macaroon-like cylinders of *lomang* passed to the guests. *Lomang* is to foreign taste the most delicious product of Batak cookery.

PLATE IX

Fig. 1. Offerings ready to be placed in the *andjapan*

Fig. 2. Cooking the *lomang*

PLATE X

The sacrificial post (*borotan*) adorned with evil-repelling plants, chiefly *baringin* (*Ficus Benjamina*), *silindjoehang* (*Cordyline fruticosa*) and *boeloe soma* (a species of bamboo). Inverted over a stick pushed into the ground (somewhat obscured in the photograph by a post) is a bamboo in which was contained a purifying liquid (*tambar*) of water and citrus juice, used for the purification (*mangoeras*) of the sacrificial goat. The men in the background are cutting up the goat.

PLATE X

The sacrificial post, *borotan*

PLATE XI

FIG. 1. A less complex type of altar than that shown in the preceding plates. It is similar except that there is to be no consultation of the ancestral spirits through the medium, and therefore the medium's platform is omitted. It was customary to place some article of the ancient *regalia*, an heirloom, *poesaka*, in or before the altar in order to establish a sympathetic bond between the spirits and their descendants. For this purpose the *toenggal panaloewan* (magic staff) was most often used, and the inflorescence of *boenga siala* is looked upon as a symbol for the *toenggal panaloewan*.

FIG. 2. Datoe Boersok before the *andjapan*. This altar was built by Datoe Silo Tonga to celebrate the coming home of Bidin. He was assisted in the ceremonies by Datoe Boersok and Doekoen Gomal of Taloen Djoring. Gomal is a Muslim and therefore technically a *doekoen* (physician) instead of a *datoe*. He forgot his new religion for the occasion, however, except that he prefixed his invocations by the Muslim confession of faith, as Silo Tonga and Boersok did also, as a matter of courtesy, although both are of course uncircumcised heathen. Some of the guests were pagan and some were Muslim, but all had a thoroughly good time.

FIG. 3. Simple type of altar, *andjapan*, without the upper chamber. The offerings are placed on such an altar at night, and the people leave the spirits to eat in privacy. Notice the two inflorescences of *pining* (*mange-mange*) hanging on the front uprights. These are practically never omitted, no matter how simple the altar. The *boeloeng ni bagot* is well shown. The rhachis is split at the base to enable it to be securely attached. Notice especially the upside-down ladder, for use by the upside-down spirits. Near house of Toean Taratak, Boentoe Pane, Aug. 16, 1918.

FIG. 1. *Andjapan* with upper and lower chambers

FIG. 2. *Andjapan* with upper and lower chambers

FIG. 3. *Andjapan* of simple type

PLATE XII

FIG. 1. The *pagar si pondom moeoloeol* at the site of the ancestral graves, photographed in 1918. At the base (covered by grass and débris) was the brass dish covering the jar in which was contained the *pagar si biaksa*. In the background is the *djirat* or *pondom*, grave-house over the grave of Saoe Maradja, father of the present chief of Silo Maradja.

FIG. 2. The party which went with the writer to the old village site in 1927 to secure the *pagar si pondom moeoloeol* and *pagar si biaksa* for transportation to the new site, where the sacrifices and offerings were to be made once more after being neglected for a decade. Left, Datoe Boersok; middle, Tarmahita; right, Ria Maradja.

FIG. 1. *Pagar si pondom moeoloeol*, in 1918

FIG. 2. Exhuming the *pagar si biaksa*, 1927

PLATE XIII

FIG. 1. The brass dish covering the *pagar si biaksa*, as it was exposed by brushing away leaves and soil. According to tradition, this bowl was made by a brass worker of Silo Maradja several generations ago, and was always used at the yearly sacrifice when the blood of a dog was offered to the *pangoeloebalang* of the *pagar*. Underneath this dish was a Chinese plate, and under that (in fragments) the cover of the green-glazed jar which, with its contents, constituted the *pagar*.

FIG. 2. The *pagar si biaksa* lifted from the hole. The jar had a beautiful transparent green glaze, but was earthenware rather than porcelain. It was filled with earth, in which were a few small bones, but the writer's companions were too nervous to permit it to be examined carefully.

PLATE XIII

FIG. 1. Bowl covering the *pagar si biaksa*

FIG. 2. Chinese jar containing the *pagar si biaksa*

PLATE XIV

In preparation for the offerings to the *pangoeloebalang* (spirits of the ancient human sacrifices) of the *pagar si pondom moeoloeol* and the *pagar si biaksa*. The figure of the former (carved of tree fern) has been adorned with a fringe of hanging palm leaflets and its face covered by a mask made from the spathe of a betel-nut palm (*pining*). On a clean new pandanus mat are already placed two plates of the offerings, covered to prevent pollution or trespass by mischievous spirits before the ceremony begins. Thrust into the ground are the spear and sword whose blades are whetted against each other during the ceremony in order to simulate the old times when a human being would have been sacrificed. Just at the left of the *pagar si pondom moeoloeol* is the brass bowl which for generations has covered the "companion" — *pagar si biaksa*. The man in the rear is Tarmahita, assisting the *datoe* in the ceremonies. The little boy is Djimmali, son of Dji Maradja, and nephew of Ria Maradja, the ruling chief. The offerings were made under the direction of the *datoe* by the *sibaso*, who was first purified by fumigation with the smoke of burning benzoin. His head and hands were tied in purified white cloth.

PLATE XIV

Pagar si pondom moeoloeol before the sacrificial ceremonies

PLATE XV

After the offerings have been made to *si pondom moeoloeol*, the *sibaso*, head and hands still tied in cloth, whets the sword and spear together. The mask has been removed from the *pagar* for this part of the ceremony.

PLATE XV

Whetting the sword at the sacrifice to the *pagar si pondom moeoloeol*

PLATE XVI

The most famous stone *pangoeloebalang* in Tano Djawa, known by the name of Si Boekkoek Si Naga Nadi Hojoeng. It is located under an ancient *baringin* tree (*Ficus Benjamina*) at Pĕmatang Tano Djawa. The name Si Boekkoek means "The Hump-backed." Si Naga is the name of a *marga* (the cobra sept) and Nadi Hojoeng the name of the legendary ancestor of the chiefs of Tano Djawa (Tideman, 25, p. 60). The name would seem to imply that there is a subsept (si Naga Nadi Hojoeng) named from the stem ancestor, and that Si Boekkoek, "the Hump-backed," who was presumably sacrificed to make the *pangoeloebalang*, was a member of this subsept, and therefore of the ruler's family. In Asahan as well as in Simĕloengoen there is a kind of small *pagar* called *pagar pangoeloebalang si boekkoek*, which takes its name from the famous image at Pĕmatang Tano Djawa and identifies the possessor as one who is not to be harmed by the *pangoeloebalang*.

PLATE XVI

Si Boekkoek Si Naga Nadi Hojoeng, the most famous *pangoeloebalang* of Tano Djawa

PLATE XVII

Probably the newest *pangoeloebalang* of the Batak lands. This image was made in 1918 by the *radja* of Tano Djawa, Toewan Djintar, in order to protect him against arrest and deposition by the Dutch authorities. (See Tideman, 25, p. 50.) He had been guilty of murder, and was secretly disliked by his own people, who hinted that he had eaten a child of his own village within a year. He was arrested, charged with various crimes, and died at Medan in 1920 while trial of his case was pending. His new *pangoeloebalang* was found in an inclosure with walls of roughly woven strips of bark and bamboo, hung with fringes of palm leaflets, just as it had been prepared for secret ceremonies which had as their object the murder of Mr. Tideman, Resident in charge of Siměloengoen and the Karolands. Mr. Tideman visited Pěmatang Tano Djawa with the writer the day this photograph was taken.

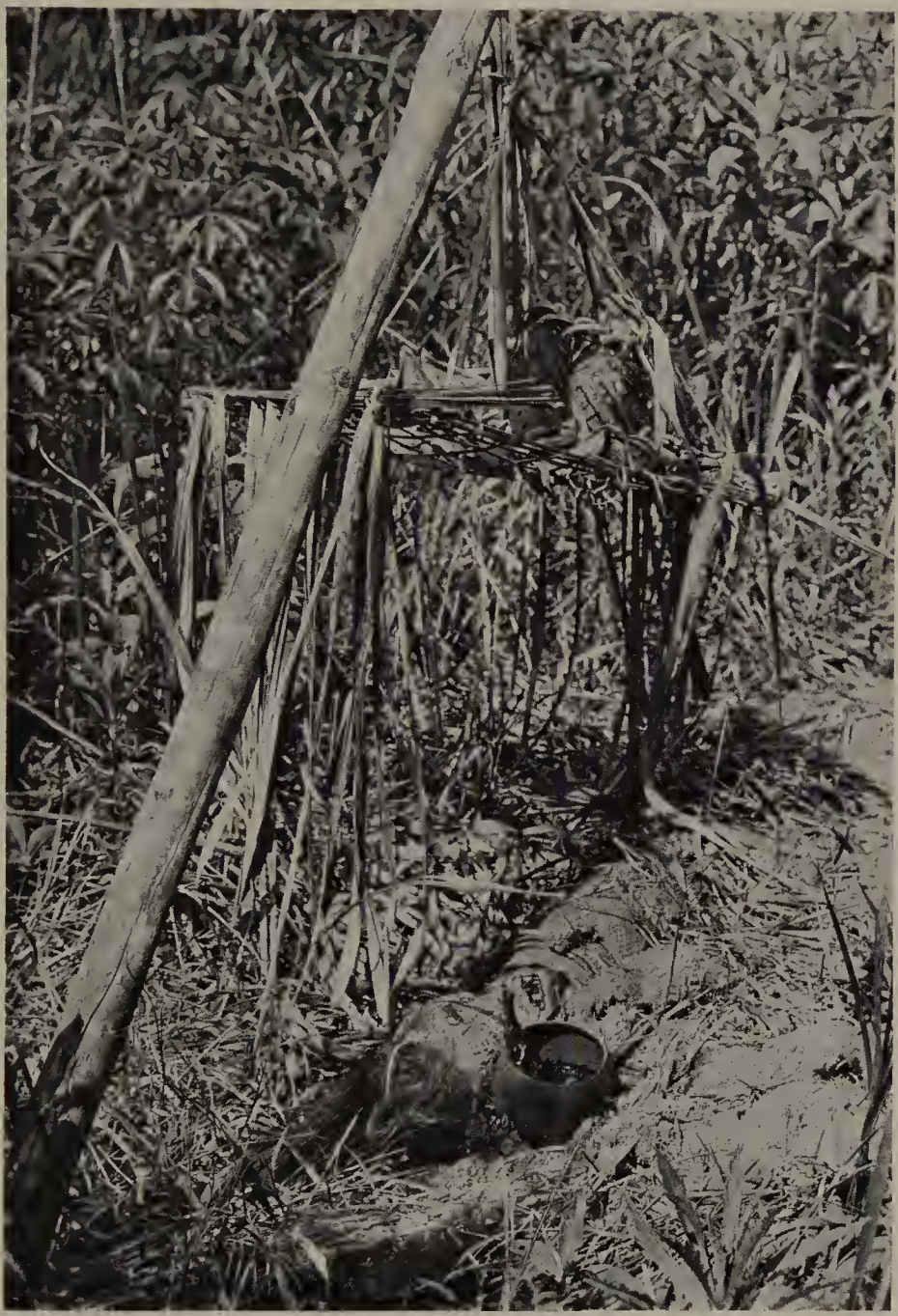
PLATE XVII

Toehan Djintar's new *pangoeloebalang* at Pĕmatang Tano Djawa

PLATE XVIII

Parsili near the path from Ajer Teloek Dalam to Ladang Si Djaboet, 1918. The head of the carved banana stem has *idjoek* fiber for hair. Beside it is a coconut shell of water containing herbs and "purifiers." The *parsili* is wrapped in the invalid's cloth and sleeping mat, but the opening at the "heart" in which the *tondi*-containing mixture of finger nails, and such things, is placed, is not covered, and shows in the photograph. The oblique bamboo over the flimsy altar has "*mombang*" hanging from it to flag the evil spirit, *begoe*. On the altar are a variety of offerings of food for the *begoe*.

PLATE XVIII



Parsili, with *mombang* and *andjapan*

PLATE XIX

Parsili at a crossing of paths near house of the chief of Maria Doge, Aug. 16, 1918. As in the last illustration, the old sleeping mat does not cover the cavity containing the offering of *tondi* from the patient and his friends. Instead of a coconut shell there is a gourd for drink. The base of the oblique bamboo with *mombang* to flag the *begoe* is shown.

PLATE XIX

Parsili of banana stem

PLATE XX

Fig. 1. The offering known as *boeloeng ni bagot* (leaf of the sugar palm) or *mombang* (a word always designating something hanging — often an epiphytic plant). It consists of a leaf of sugar palm set obliquely in the ground. The lower leaflets are trimmed off, but those at the end are left as a flag for the evil spirits, *begoe*. Along the lower part of the rhachis are placed *sirih* quids in notches. At the base is a coconut shell incense burner, *parasapan*. The *mombang* hangs from the upper part of the rhachis by a cord. It is shown in Figure 2.

Fig. 2. *Mombang*, a common type of offering made to evil spirits when children have bad dreams, convulsions, fits or epilepsy. It generally hangs from the *boeloeng ni bagot*, but not always. In Siměloengoen it frequently hangs under the eaves, and in both Asahan and Siměloengoen it frequently hangs from a bamboo. It consists of a roughly woven basket for offerings, from which project radially long palm blades. Underneath is a fringe of young yellow palm leaflets. Above are two or more umbrella-like structures, with ribs of drooping palm leaflets.

Fig. 3. Datoe Boersok, placing offerings to the *djinoedjoeng* on the *pandaongan* in the house of his *marga* brothers Kalim and Dollah. The *pandaongan* is usually suspended from the roof-beam inside the house, up near the thatch, and is let down when offerings are made.

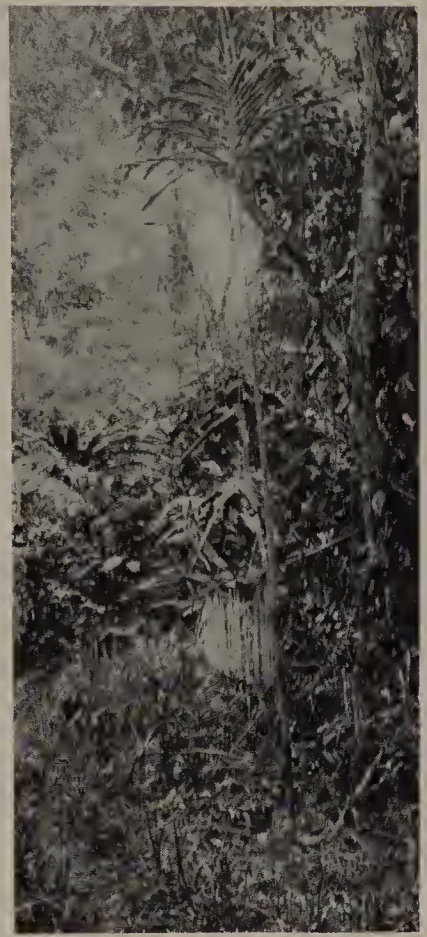


FIG. 1. *Boeloeng ni bagot* and *mombang*

FIG. 2. *Boeloeng ni bagot* and *mombang*

FIG. 3. *Pandaongan*

PLATE XXI

Corner of a house at Silo Maradja, showing the conical bamboo and basketry receptacle which is used to contain offerings to the spirits, to contain a *pagar* (*parpagaran*) or as a hen's nest. In the picture it is a nest, and the ladder is for the convenience of the hen and the child who looks for the eggs. At the right is the so-called croton (*Codiaeum*) a favorite novelty plant many varieties of which are planted by both Batak and Malay. (In Plate I Bidin and Dorsang are carrying cuttings of a variety with leaf pitchers, which they were sure I would wish to plant on account of its peculiar structure. The natives also plant *Muhlenbeckia platyclada* and *Opuntia Ficus-Indica* because of their interest in the aberrant morphology of these plants.)

PLATE XXI

Sakkak ni manoek

PLATE XXII

Arrangement of offerings in preparation of the purifying protector *pagar mangoeras:* (*a*) coconut oil, *minak manis*, applied in two groups of five streaks each, at diagonal corners, upper left and lower right; (*b*) lamp-black, *badja*, collected on a cold oily knife blade from a smoky flame and applied in the same way as the oil, at upper right and lower left corners; (*c*) two balls of rice flour dough, *itak si porah;* (*d*) on each side of the midrib three kinds of sacred herbs, *roedang;* (*e*) grains of rice of three colors, *boras toloe roepa*, at the center of the leaf, where the bowl is placed; and (*f*) leaves of *sirih*, ceremoniously called "greens to be limed," *apoeran sajoer*, placed with the rice.

PLATE XXII

Arrangement of the offerings for the *pagar mangoeras*

PLATE XXIII

Bidin's drawing of a Batak house, to show the positions of the chief kinds of *pagar*. In front, under the ladder, is the *pagar pangoelak*, to secure the return of the departed soul of one who is ill or dreaming or of a person who has gone away. The house is transversely divided into three rooms, the front for the men and male visitors, the middle for the family and visitors who are relatives or intimate friends, the back for the women and young children. Over the entrance to the front compartment is the *pagar pangori*. (In order to show it Bidin has not drawn the corner post of the house.) Under the eaves in front he shows the *pagar debata* (defence of the gods). In the middle compartment hangs the *pagar parorot*, which is the children's guardian. Under the house is the *haenggalan*, an altar to the spirit of a buried child, which acts as a guardian.

PLATE XXIII

Bidin's sketch showing position of the several *pagar*

PLATE XXIV

A collection of religious and magical carvings, all but two from Silo Maradja. At the left is the *toenggal panaloewan*, which the Muslims urged the *radja* to part with since it formed an obstacle to his people becoming converts. Aside from the mask, *topeng*, already discussed by the writer (3, p. 10, Pl. XX) the remaining figures are all *pagar*. The *pagar parorot* is the large one bound in black *idjoek* fiber at the right of the mask. On the top row, upside-down, is the *pagar soendat margantoeng*, given to the writer by Datoe Djadi Hata of Djoema Si Djaboet, near Ajer Teloek Dalam. (The rest will be described in a subsequent article.)

PLATE XXIV

A collection of *pagar* from Silo Maradja

PLATE XXV

The procession of the *anak parawin* (marriageable girls) bearing gifts in the ceremony *mangoepa hoela-hoela*. The procession is led by two sword dancers, one of whom, dancing backward, opposes the advance of the procession, but is constantly forced back. They are followed by a spear bearer (his spear is just seen at the right of the picture). Then come the gift bearers with baskets of old heirlooms (*poesaka*) on their heads. Each girl is accompanied by a man (generally of her own *marga*) bearing an umbrella over her head. The *datoe* and the orchestra accompany the procession. The old *hoela-hoela* women to whom the gifts are brought are guests in the house of a member of the *marga* into which they customarily marry. In this instance the *kandoeri* (party) is being given to celebrate the home-coming of Bidin (*marga* Si Rait Holboeng) by Si Djonggol, his brother. The *anak parawin* who bring the gifts are Bidin's own *marga* sisters. The gifts have been collected from the old people of his own *marga* and are presented to the old women of *marga* Si Toroes, the *hoela-hoela* of Si Rait Holboeng. The supposition is that Bidin, still unmarried, is in search of a bride, and that he will doubtless wish to choose a girl of Si Toroes, preferably but not necessarily a daughter of his mother's brother. After the *mangoepa hoela-hoela* he will perform the betel-chewing ceremony *parpoeran-poeranon* with the *hoela-hoela* men, and the *marsiroedangan* ceremony with the *hoela-hoela* girls.

PLATE XXV

The bearers of the gifts in the ceremony *mangoepa hoela-hoela*

PLATE XXVI

Sword dancers in the ceremony *mangoepa hoela-hoela*, the bringing of gifts to the old women of the preferred marriage sept, *hoela-hoela*. The procession bearing the gifts is preceded by two sword dancers, whose pantomime conflict reaches its height at the crossed sticks (*silang*) over which those must step who enter the inclosure, which has been purified for the ceremony. Evil spirits (*begoe*) cannot step over the *silang*. The dancer who repels the advance of the procession at length jumps over the cross, but continues to fight his opponent. He is finally forced back, but the fight continues with both dancers in the inclosure, while the procession enters and passes into the house. There the guests are seated in preparation for the presentation of the gifts, and the dance outside comes to an end. Only members of two septs and a few other relatives are concerned in this ceremony.

PLATE XXVI

Sword dancers in the ceremony *mangoepa hoela-hoela*

PLATE XXVII

FIG. 1. The continuation of the sword dance inside the purified inclosure.

FIG. 2. Dance of some of the girls of *marga* Si Rait Holboeng, before a *marsiroedangan* ceremony. Datoe Boersok, wearing *roedang*, dances behind them. Since the writer was chief participant (*soehoet na bona-bona*) in the ceremony, it was difficult to secure correct pictures. This one was posed before the ceremony. Others (Pl. XXVIII) were exposed later by the Muslim teacher Lobeh Hassan, for whom the writer set up the camera.

FIG. 1. The conclusion of the sword dance within the inclosure

FIG. 2. The girls' dance in the *marsiroedangan* ceremony

PLATE XXVIII

Fig. 1. Dancing which preceded the *marsiroedangan* ceremony between the writer and the young girls of two septs, the writer's own (*marga* Si Rait Holboeng) and the *hoela-hoela* (*marga* Si Toroes). Datoe Boersok dances with the writer in a dual capacity — as *datoe* and as an elderly representative of the *hoela-hoela*.

Fig. 2. The writer carrying out *marsiroedangan* (reciprocal presentation of sacred herbs) with the young girls of his own *marga*, who become his younger sisters. The writer (with ceremonial head-dress) sits at the middle of the mat, facing forward. At his right are Datoe Boersok and the chief, Ria Maradja (who becomes his elder brother). At his left is Dji Maradja (younger brother). Sitting opposite are the young girls of *marga* Si Rait Holboeng. At their right stands Sarmain, wife of Ria Maradja, who becomes the writer's elder sister, *kakak*. (Picture exposed by Lobeh Hassan.)

PLATE XXVIII

FIG. 1. Dancing in the *marsiroedangan* ceremony

FIG. 2. The exchange of sacred herbs

PLATE XXIX

FIGS. 1–2. Two views of Datoe Boersok dancing after invoking the spirits for a sacrificial feast, *kandoeri*.

FIG. 3. Datoe Boersok blessing bouquets of *roedang* (sacred herbs) for the *marroedang* ceremony.

FIG. 1. Datoe Boersok dancing after invoking the ancestral spirits

FIG. 2. Datoe Boersok dancing after invoking the ancestral spirits

FIG. 3. Datoe Boersoek blessing the sacred herbs

PLATE XXX

FIG. 1. A part of the Batak orchestra. Datoe Boersok plays the *saroene toba* (left), Tarmahita beats a gong, Oenoes beats two drums (the drum under his knee is struck with the fingers of the left hand), and Djaidim (standing) beats a muffled gong.

FIG. 2. Datoe Boersok plays the *saroene toba*. This instrument is blown continuously by pumping air from the mouth with a backward and forward movement of the base of the tongue. The cheeks are distended and act as a bellows. In the wilder shrieks of the *saroene* the *datoe* blows into the instrument in the ordinary way, but the tone is continuous for a long period, half an hour or more, before the player is tired and yields his place for a few minutes to someone else. There is also a *saroene sibaloengoen* which has a slender instead of trumpet-like appendage on the part which is bored for stops.

Fig. 1. Batak orchestra

Fig. 2. Playing the *saroene toba*

SOME ANCIENT INDIAN VILLAGE SITES IN SAGINAW COUNTY, MICHIGAN

FRED DUSTIN

GENERAL STATEMENT

ABOUT fifteen years ago I prepared a paper entitled "Saginaw as a Center of Aboriginal Population," in which I endeavored to show that this county was the focus of travel and the center of an Indian aggregation of communities, probably the largest in the state. Its very designation by the Indians themselves, *Kah-Bay-Shay-Way-Ning*, meaning "The Gathering Place," would tend to prove the correctness of this theory, for in addition to the converging streams forming the Saginaw River, the present City of Saginaw was a cross-roads or termination of several of the most important trails in the state, namely, the great Saginaw and Grand River Trail, the Detroit and Saginaw Trail and the great Saginaw and Mackinaw Trail which appears to have followed up the Tittabawassee River and thence to Houghton Lake or thereabouts, passing north to Old Mackinaw. There was also a very important trail from Saginaw to Bay City which followed up the Bay Shore to the Rifle River where it branched to the northwest, following that stream to the springs of Ogemaw and on to the main Mackinaw Trail either north of Houghton Lake or perhaps to its shores.

Harlan I. Smith in his valuable little pamphlet, "The Saginaw Valley Collection,"[1] indicates six aboriginal village sites in Saginaw County on the Saginaw River proper, two on the Flint, five on the Cass and five on the Tittabawassee, a total of eighteen, and, in addition, he enumerates graves, mounds, caches and workshops.

[1] *American Museum of Natural History*, Supplement to *The American Museum Journal*, Vol. I (1901), No. 12.

Prior to 1929 I myself had located and collected relics from twenty-five or more village sites on the Tittabawassee alone, and from about sixty on the other streams, making over eighty of which I have personal knowledge, and could I have as fully explored the Shiawassee, the Bad and the Flint as I have the Cass and the Tittabawassee, I have no doubt the grand total would be well over a hundred village sites in this county. As a large number of these sites covered many acres of ground, the archaeologist will at once understand from the character of the relics discovered that a relatively large Indian population inhabited this county.

At this point the question may arise, What is a village site? Some writers make a distinction between "village sites" and "camp sites," but as far as this paper is concerned, I shall dispose of this question once for all by saying that the terms are interchangeable, for a village might be the habitation of one, five or fifty families. A war or hunting party might naturally camp in the open, leaving in after years no trace whatever. We well know that the habitations of the Indians of this district were highly perishable, but their stone artifacts would endure for ages. Even their frail pottery, if undisturbed, would be preserved for centuries. Corn-cobs reduced to charcoal, but retaining their form, might lie buried for other centuries, and even animal remains such as beavers' teeth, ear bones of certain fish and deer antlers might last for scores of years. If one bears these facts in mind, it is not difficult to identify village sites, and, if the surface soil is worked, to mark their extent, and even to make a rough estimate of the number of inhabitants. The latter half of this statement, however, might lead us into difficulties, for some of these villages were undoubtedly occupied for hundreds of years, and successive wigwams were erected and in their turn were destroyed or crumbled back into earth. For these reasons much caution should be used in any estimate of time and numbers. An isolated wigwam site is the exception, as would be natural with a primitive people even as individualistic as the Indian, but they did exist, and give us clews to the inner lives of these most interesting aborigines.

Dr. W. B. Hinsdale, of the University of Michigan, has summarized the Indian culture of the state in his excellent book,

Primitive Man in Michigan,[2] and has given us the most valuable and useful synopsis of Michigan archaeology yet published. My own observations have been local, made largely by trips on foot, and these walks have been my chief recreation for years. I can make no claim to original ideas or discoveries, but in this paper I have endeavored to state a few facts of interest to students of the archaeology of our state.

Saginaw County, as a whole, is a fairly level plain. Its contours are slight, so gentle indeed, that the United States Geological Survey on its topographic maps covering most of the county shows only five-foot contour lines. Many square miles were originally wet prairie, and the summit of the divide between the headwaters of the Grand (Maple) River and Saginaw (Bad) River was in a wet season imperceptible. The highest point in the county was, I think, near the Arkona Beach of the glacial Lake Saginaw in the southwest corner, and was not elevated above the Lake Huron level more than about two hundred feet. The lower courses of the Shiawassee, the Flint, the Bad rivers and Swan Creek were through marshes. All were navigable by canoes. Game, fish, wild fruits and nuts were plentiful; the low bottom lands were suited for corn; materials for habitations, canoes, arms and utensils were within easy reach; wild rice was abundant and a heavy growth of sugar-maple trees furnished their supply of sweets. Here was abundance.

In view of these advantages, it is not surprising that we find places where for a mile we may note scattered fire-beds and collect arrow-points, pottery, celts and other relics without once getting off ground where these remains are in evidence. Such is the Stroebel Village a few hundred yards south of the Tittabawassee River and close to the flood-plain. It extends from the new Merrill Bridge road between Sections 4 and 5 in James Township southwestward along the low ridge for over a mile into Section 6 and perhaps farther into Section 7. I am safe in saying that for three quarters of this distance there is not a rod that I have not collected from, following the line of the old trail, a part of which was

[2] Michigan Handbook Series, No. 1. Published by the University of Michigan, Ann Arbor, 1925.

a few years ago visible, and it is along this part, long free from the plow, that I failed to make any collections; but beyond, across the section line in a plowed field, I have added to my store, and doubt not that at some time the gap will be filled. This particular site varies in breadth from perhaps eighty rods to about double that distance. Pottery is not plentiful, but is found; arrow and spear-points, cutting blades, axes, adzes, grinding and polishing stones, drills, and ornaments as well as chips and spalls of chert in quantities, have been collected; while close to the trail, some years ago, I found a cache of leaf-shaped blades, and years after that, the spot with its little pile of refuse where these blades had been made from the nodules. At hand lay a hammer-stone, probably used in striking off the rough flakes. I knew they were of the same material, owing to their being of an unusual variety or form of chert. I have also collected two or three articles of native copper here, among them two spear-points lying together. Some animal remains are to be seen, such as bears' and beavers' teeth, fragments of deer antler and rarely a bone of some large fish. Human remains have been found mostly near the east and west ends of this village, on the sand knolls; in fact the township cemetery is located on an Indian burial spot, and just across the road on the same knoll I have often picked up bits of skull, teeth and finger or toe bones. Part of this village site is light sand, and I owe not a little to the winds that have unearthed many a fine article which told its tale of Long Ago.

Mr. George Stroebel, the owner of the farm on which a considerable portion of this village lies, has collected many pieces, as has also Mr. Ralph Stroebel and perhaps others. It has been a favored spot for certain treasure-hunters, the traditional pot of gold (sometimes silver) having been reputed to lie hidden hereabouts. Some years ago, an aged woman after consulting a seer had several large and deep holes dug with the usual lack of success, and I have heard of another individual who by means of a magic telephone was said to be able to call up the spirits, and thus receive information as to other golden treasure. I myself have found a nickel and a cent here, so perhaps the seer was mistaken in the metal.

The Stroebel Village is a typical low-lying site, removed from, yet close to, the flood-plain, and well back from the river itself, but close to a bayou or dead stream that perhaps centuries ago was the line of the river. Its characteristic features are low sand ridges formerly bearing pine trees with heavy land along each side.

Proceeding up the Tittabawassee River and passing one or two villages, we come to the Frazer Village and Mound, close to the river, partly in Section 31, James Township, and partly in Section 30, Thomas Township. At this point the stream makes a sweeping bend, and a sandy bluff rises abruptly from the water's edge to a height of twenty or twenty-five feet. It is a beautiful spot where I have spent many hours collecting or sitting at rest enjoying the quiet beauty of the scene. The so-called Frazer Mound was simply a natural sand knoll of an acre or more surface. It was a burial spot and so numerous were the human remains that I have little doubt that they numbered hundreds. For many years a brickyard was operated just east of the knoll, and the sand was used in the manufacture of the brick, and in removing it, dozens of skeletons were broken up and cast aside. The large house was near the crest of the elevation, but has since been torn down, and the land is now under cultivation. The line between the two townships was a few rods north of the house, and the land beyond was owned by other parties, and here I have made large collections, for the soil has been undisturbed except by the plow. One spring I noted ten skeletons turned up by unusually deep plowing after a long-continued hard wind which removed several inches of sand. Two of the skeletons would appear to have been those of a mother and child lying close together. In fact the ten were not far apart. They were much decayed, but could be identified as individuals by the skulls which, while in fragments, were easily noted.

An old Chippewa tradition makes this spot the scene of one of the desperate battles with the Sauks or Sau-gee after the battle at Skull Island. I have no doubt that the tradition is, at least in essence, a historic fact.

Pottery fragments are very plentiful here; all kinds of weapons, utensils, ornaments, pipes and many animal remains have rewarded

my search. In my collection are articles of native copper, bears' teeth, column of a sea shell, wampum (one piece only), beautiful arrow-points of chalcedony and plenty of other things of note, among them a fine mound pipe found with a skeleton, the lower end of a thigh bone of which was exposed by the falling away of the river-bank. I removed the skeleton from its last resting-place, where it had been buried in a reclining position, looking to the east, as though watching for the sun of the New Day. The arms were extended by the sides, and as I was undermining in the soft sand with my bare hands, I paused in some awe as the skeleton fingers of the right hand dropped into my extended palm, for here Life and Death met and clasped hands.

To the west and north of this knoll, the ground falls off to the bed of a ravine, which in springtime carries a considerable flow of water, and beyond this ravine is a tract of perhaps twenty acres where many wigwams stood, perhaps forming a portion of the former village. In this immediate vicinity and that of the mound, several caches of blades have been found, some of them of unusual form, material and beauty. The surface soil of these sites is sand, and like the Stroebel, is pine-bearing. It was a strategic point. Just below it there was a ford from the trail to Saginaw. The height and the bend in the river enabled its inhabitants to observe far up and down the stream. It is a typical high-lying site, and gives evidence of its permanent character by its very numerous pottery remains, and while chert chips are by no means lacking, it does not have that characteristic workshop appearance which distinguishes the Stroebel Village. Its human remains show also that it was a favored spot, and one where not only in war but in peace as well the dead lay thick, for these Children of Nature had as much or more love for their Mother Earth and her beauties as we of a later day.

Following up the old Indian trail on the west side of the Titta-bawassee, now the West River Road, we come to a place of much note in the lumbering days known as Bryant's Trip, referring to a massive boom in the river which could be opened on occasion, and which held back the jam of logs above the sorting booms below. The river makes a sharp elbow, and the banks on the

west side rise steeply twenty-five or thirty feet. This is in Section 11 in Thomas Township some five miles above the Fraser Village, which it resembles in beauty of location and strategic outlook. Ancient remains are plentiful enough, such as pottery, chert and stone weapons and utensils, and other articles of interest attract the archaeologist and collector, but it would seem to have been more of a stopping-place than a permanent village of much size, for chert chips and spalls are relatively scarce, and human remains appear to be very few, although the soft sand was most favorable for interments. This village site is about a third of a mile long, and most of it lies close to the edge of the high bank of the river and flood-plain which bound it on the east, although it extends southwesterly across the road to a knoll some five feet higher which gives a clear view up and down the river.

It appears to be not merely a temporary camping ground, but a typical stopping-place where there were permanent dwellings and where the population was frequently augmented by parties on foot or in canoes, according to season, who often tarried for considerable periods, presumably to hunt or fish.

Farther south and across a deep ravine more remains exist, but scattered and rather infrequent, although between this point and the Frazer Village there are several quite extensive village sites from which I have made collections.

About one mile beyond Bryant's Trip, it will be noted that the morainic ridge we are following has increased in height, and the road has attained an elevation above the river of about thirty-five feet, and that knolls and knobs are more frequent. At this point we see on the left a knoll rising twenty feet above the road and close to it. The soil is so poor that it has not been under cultivation more than two or three times in fifteen or twenty years, but these rare periods have revealed the fact that it appears to be a typical isolated village, probably occupied by not more than two or three families, but for some reason long inhabited. I was so struck with its beauty of location that, after discovering its character, I named it Fairview Village. I do not know that the Red Men dwelt on this little summit for its beauty alone. I doubt it; but owing to the fact that other remains in the immediate

vicinity are scarce, I cannot help believing that something more than a purely utilitarian view was a factor in the choice. I have collected pottery, weapons and utensils from this site.

One more village on the Tittabawassee will be described, the Andrews workshops discussed by Harlan I. Smith.[3] This village lies mostly in Section 32, Saginaw Township, on the north side of the river, extending west and north of the Michigan Central Railroad, which here crosses the stream. Not far above this point an aboriginal ford, before mentioned, crossed the river diagonally, leading to the Frazer Village less than a mile distant from the Andrews Site. This village covered about twenty acres of sandy land, much of which rose about ten feet above the general level.

Great quantities of chert chips, spalls and rejects were scattered over the surface and buried in the sand. Weapons, implements, ornaments, pottery and animal remains were plentiful; some human remains were found from time to time, and Mr. Ralph Stroebel, Harlan I. Smith and others have made large collections of miscellaneous relics. Within the last few years, a large part of the sandy knoll has been removed for industrial purposes and two or three years ago two boys while playing in the excavation discovered a cache of chert blades which have been described by Mr. Stroebel in a report to the Michigan State Archeological Association.[4] This is a typical industrial village site, its close proximity to the river making it convenient for landing the raw materials (chert nodules) from canoes which had conveyed them from the islands in Saginaw Bay or from its shores at Bay Port.

Where the Pere Marquette Railroad crosses the line between Sections 33 and 34 in Thomas Township, the sand ridge formerly rose in a knoll quite steeply to a height of about thirty feet above the tracks. This was on the Owosso Trail to Detroit, and half a mile west of Swan Creek. Here, over a surface of perhaps eighty acres, relics innumerable have been collected, and human remains in all stages of decay have from time to time been revealed. The

[3] *Op. cit.*, p. 21.

[4] See p. 442 of a paper by Edw. J. Stevens, "Michigan State Archeological Survey," *Mich. Hist. Mag.*, 11: 436–444.

sand knoll has been entirely removed, but the lower ridges are still undisturbed. Mr. Henry Bornhoff of Saginaw has here collected an unusually fine lot of relics, and several others have also secured good articles, but, like so many other interesting sites, it was never carefully studied, and the few notes I have made at different times are meager, and my collection is small. It includes a skull bleached to a snowy whiteness from having been exposed in a sand "blowhole" for a long period. Pottery fragments were numerous, and it is quite probable that careful excavation might have yielded some good specimens. A curious fact was noted in this connection, that, according to the testimony of those living at hand, lightning quite frequently was attracted to this high knoll, and it was believed by some that there must be a valuable metallic substance hidden there; the wiser suggested iron ore. I presume that its height and the spiring trees on its summit were the only attractions necessary to produce the phenomena. I have several of the odd fulgurites formed by the electric current partly fusing the sand.

This village was a typical trail site, the high knob affording a lookout and the open pine forest a fine camping place. On the southeast at least, the remains extend down on the heavy bottom land, indicating winter residences.

We shall now turn to the Cass River remains; at Bridgeport we find the Andross Mound and Village. The mound is no more, having been removed and sold as core sand. It was described by Harlan I. Smith,[5] who also mentions remains in its vicinity. This aboriginal village probably covered a hundred acres. It lies at the Great Bend of the Cass, half a mile below the ford on the great Saginaw and Detroit Trail. The land rises in low ridges from the stream, and along these extended the village, also running westerly on the farm of Mr. Eugene Ellis, now deceased, who was an indefatigable and very intelligent collector and student. From his own lands he gathered hundreds of articles, as well as from the neighborhood, but unfortunately his written data, if any exist, are not available.

From the Detroit Trail an important branch led up the Cass

[5] *Op. cit.*, p. 21.

to its headwaters, and probably even down to Port Huron. The present Dixie Highway follows it approximately to its crossing about four miles southeast.

Bridgeport Village has so covered many of the ancient remains that there is little left for the archaeologist to explore. The Andross Village was perhaps a good type of strategic location.

Passing on up the Cass to a point where the line between Bridgeport and Frankenmuth towns crosses it, we find ourselves near the westerly end of a low hog-back which here fades out in the flood-plain, but easterly is lost in the second terrace above the river, and well above high-water mark. It was here, on land now owned by Mr. Frank Satchell, that the first white settler in Frankenmuth, Henry (sometimes called Ariel or Aree) Campau, located, building a small cabin in the open grounds of an ancient Indian village. The timber was pine, which in due time was cut off; the land was cleared, and its relics were revealed. From the tip of the hog-back easterly for a mile across land owned by Mrs. N. Symons I have observed traces of primitive culture and collected artifacts. The remains are not on continuous sites, but appear to be in four well-defined groups, and although, owing to buildings and other culture, it is not possible fully to trace a connection, it is quite likely that no group was beyond the sight of the next one. Again, it might be that all these groups were not contemporary; still, from appearances and apparent age of the implements I should judge it was a good type of scattered village, lying close upon a bend in the river, but at its eastern extremity bearing away from the flood-plain below. I have collected largely from this village site, and Mr. Satchell states that in former years the ground in places was literally strewn with arrow-points and other related articles. Frequently, in looking over an old Indian village site, I have come across potsherds, broken glass and other débris of a cabin of some white man who, as an early settler, had taken advantage of an Indian clearing to build his first log-house, a structure almost as perishable as the bark-and-pole dwelling of his predecessor, and they together have often mingled their dust on the same knoll. Mr. Campau lies across the river half a mile north of his first home, and around

his resting-place are scattered the mortal remains of those who came before him, "sleeping in a night of long forgetfulness."

There is a village site on the Flint River which well deserves mention, *Pe-on-i-go-ing*, "The Place of Stones," or "Flints," as it is still called by the local Indians. It is one of those places held in reverence by the few Indians left in this county, not because of any superstitious veneration, but because of its associations. Here is the only Indian church in the county, and here close at hand is the Indian cemetery, every one of the scores buried there except two, one the white wife of an Indian and the other the white husband of an Indian girl, being of the red race. This village is located on the high bank of the river, as usual at a bend, and extends perhaps half a mile up and down the stream. The banks are here about thirty feet high, and a little south of the church and two thirds of the distance down the river bank is a spring with paths running diagonally up the bank both north and south. They are worn deeply. Springs are very scarce in this region, and from time immemorial this has been used by the Indians and is a never-failing source of supply. There are a few families of them still in the immediate vicinity. Looking directly across the river, we can see the line of the old Detroit Trail, now a wagon road, and to the northeast may be discerned the location of the old Indian ford. Relics are scattered over the fields, but even the archaeologist will linger over the Present, with its little church, burial ground and dark-eyed children and adults, and forget for a moment the Past in contemplating the beauty and also the pathos of the scene before him.

These Indians express much curiosity over the relics of their ancestors, and the arrow-heads, bits of pottery, and occasional celts are as foreign to them as to us. I have not made any large collections here, and perhaps the reason will be obvious: the archaeologist is lost in the human.

For the close of this paper I have reserved an important village site which lies within the corporate limits of the City of Saginaw. It is on the flood-plain in the extreme south part of the city on the west side of the Saginaw River and north of the Tittabawassee. Here on this low ground are extensive prehistoric remains extend-

ing east and west nearly a mile, and it is quite possible that they extend farther west, but the land there is still mostly wooded and unbroken, so that the arbitrary line of the fence west of the abandoned Riverside Mine No. 2 will be taken as its western boundary. Close to the section line between Sections 2 and 3 and from thence west to the fence noted, the remains are thick, while east of this section line until we arrive at a point about a thousand feet from the junction of the Shiawassee and Tittabawassee rivers, evidences of primitive culture are rare and only casual, as far as surface indications are concerned.

Hence there is a space of about a quarter of a mile apparently barren of relics. In all probability the removal of the surface soil would reveal a treasure house to the archaeologist. The western village site is marked by two large mounds, now nearly leveled by cultivation. For many years I have made collections in the close vicinity, and near the boundary fence mentioned have occasionally picked up a piece of pottery or a chip of chert, once finding a fine little pipe. This was on the edge of a shallow wash and a foot or two below the general surface, and I began to suspect that perhaps other things might be hidden. As late as 1900, approximately, this entire tract, some of it marsh and covering over a square mile, was wooded, except small portions which had been Indian fields or natural prairie. It was all flood-plain, and on an average of two years in three is still covered by the spring freshets. After the soil was broken by the plow, it naturally began to wash in places, and gradually revealed its secrets. One spring I picked up a fine steel tomahawk as well as a few other articles east of this little wash, which terminated a dry bayou leading west. Each succeeding flood cut a little deeper, until in the spring of 1923 the swift currents of the Tittabawassee, setting eastward across the plain to the Saginaw, scoured out a tract about twenty rods wide and eighty rods long. After the flood had subsided, I visited the spot, but the son of the man who owned the land had been there before me and had collected about fifty pieces, including arrow-points and perhaps a drill or two. I looked the ground over quite carefully for about three hours, collecting three spear-points, twenty-seven perfect arrow-points, some of

them unusually fine, one perforator and one drill, four leaf-shaped blades, twelve scrapers, one white quartzite hammer-stone, fourteen broken arrow- and spear-points, twenty-four pieces of pottery from the tops of as many vessels, and other remains, bringing the total up to nearly two hundred, and the next day collected about seventy more.

It will be observed that in addition to the surface finds so plentiful close to the mounds, which are near the eastern edge of this village, there are very probably below the present surface thousands of undisturbed articles. I may add that, in the heavy wash mentioned, the hard clay was bared in spots. This has been named the Green Point Mounds Village.

Turning now to the village eastward, called Green Point Village, we find a somewhat similar condition, but due not so much to surface washing as to the cutting away of the river bank. In a paper on Indian fire-beds, which was presented before the Michigan State Archeological Society in the winter of 1928,[6] I gave a description of this place, and noted that, while surface remains were in evidence, a second series occurred about three feet below the present surface. I am inclined to believe that centuries ago some mighty flood or some unusual condition laid down a heavy deposit of alluvial soil and covered nearly if not all of the previous culture. This was probably entirely local, although it might have affected much larger areas.

This point was a noted gathering place for the Indians within historic times, and here they held their annual corn-feast. Here on the mounds, both of them artificial, were buried many of their dead, the last burial taking place in 1836 or 1837. There were also interments at and near the last village site mentioned; a few years ago the high waters of spring partially exposed the bones of a woman, fast crumbling in decay.

Treasure hunters observed them and made excavations, presumably searching for the traditional pot of gold which here is supposed to be silver. I may say in passing that there is some slight foundation for this tradition. In historic times it was not

[6] "Some Ancient Fire-Beds in Saginaw County, Michigan," *Michigan History Magazine*, 13 (1929): 301–307.

at all uncommon for an Indian woman to be arrayed for the grave in a rich garment of European manufacture, adorned on the front with silver scrolls and ornaments. When it is considered that a dollar's worth of silver bullion will make a large amount of this sort of decoration, we can understand that, in appearance at least, this show of riches is deceitful. In addition, many of the Indians received from the Jesuit missionaries thin silver crosses worth perhaps fifty cents or a dollar in bullion value. Several have been found in Saginaw County. The silver tradition is, therefore, not hard to trace. In general, if the silver-seekers would devote to hoeing corn the energy they have exhibited in digging, their gains would be greater.

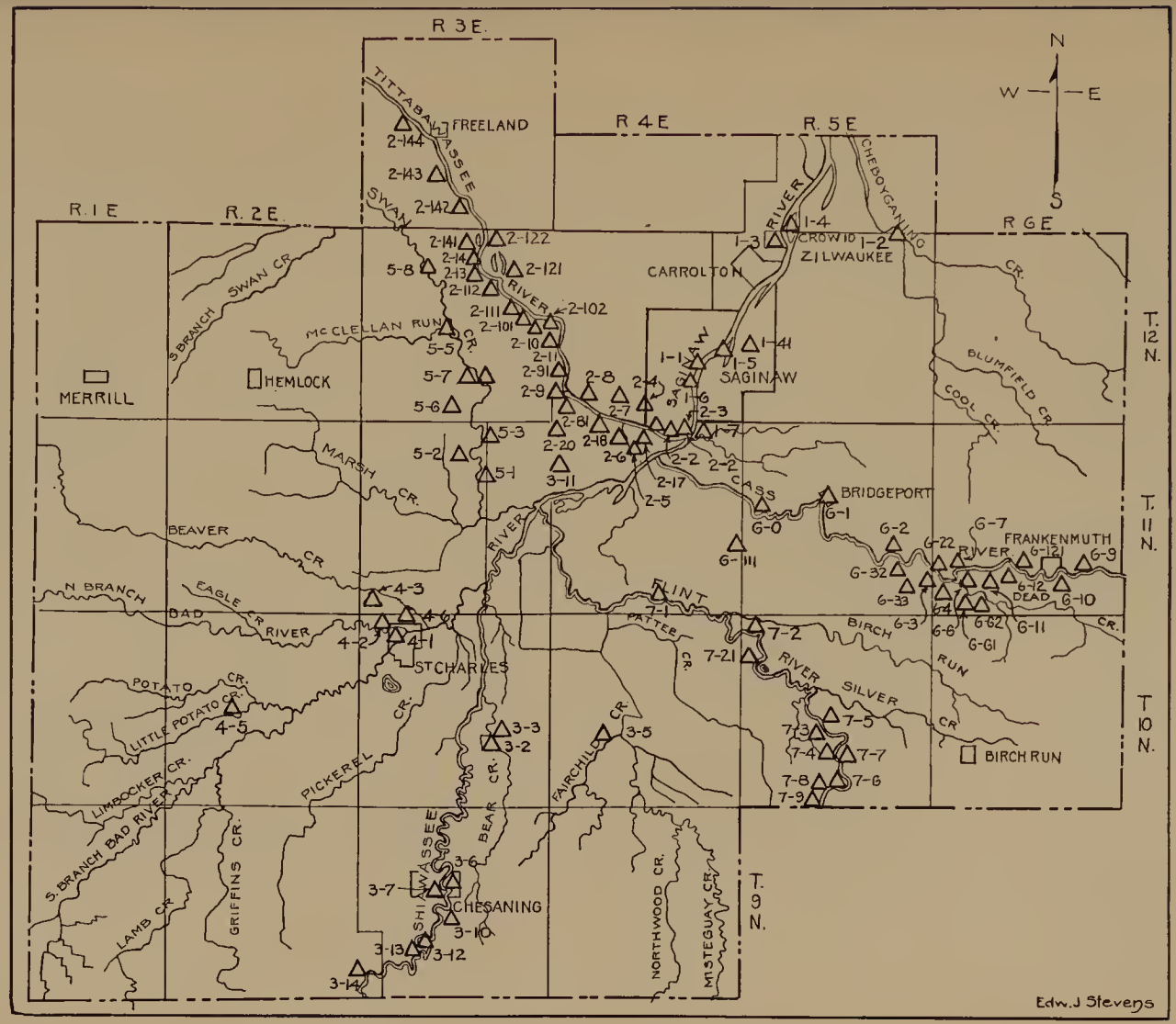
The remains on these two village sites include practically everything connected with the aboriginal life. I have collected bears' teeth, antlers, beavers' teeth, nearly a quart of "lucky-stones" (ear bones of sheepshead fish), an elk's tooth, a wolf's jaw, arrow- and spear-points, drills, scrapers, axes, cutting-blades, hammer-stones, mortars, pipes, bird-stone and gorgets, much pottery, and a long list of other relics, as well as such articles of the historic period as gun flints, round musket balls of numerous sizes, scalping and woodworking knives, a tomahawk, beads and some light pieces of silver such as those mentioned.

Green Point and Green Point Mounds villages are typical flood-plain sites.

In this paper I have tried to present a few types of aboriginal locations, perhaps somewhat too fully, but the interest shown by a few in our Michigan archaeology has been a spur to waning ambition, and it is hoped that a little has been added to our knowledge of local remains.

A CHECK-LIST OF PREHISTORIC VILLAGE SITES IN SAGINAW COUNTY

In this list village sites (see Map 1) where remains were found are indicated with reference to seven more important streams: 1, Saginaw River; 2, Tittabawassee River; 3, Shiawassee River; 4, Bad River; 5, Swan Creek; 6, Cass River; 7, Flint River.



MAP 1. Village sites along seven streams in Saginaw County

The numbers at the left indicate the sites. Though they are not consecutive, the listing begins with the lowest point of the river or the creek and ends with the last identified site upstream.

1. SAGINAW RIVER

2. Cheboyganing. — On Cheboyganing Creek in Buena Vista Tp. where the corners of Sections 1, 2, 35 and 36 meet.
3. Nemitequa. — On the site of the present village of Zilwaukee.
4. Kishkawko's. — The present Crow Island.
41. Tewawbawking. — In the vicinity of the Hoyt Library and south, City of Saginaw.
1. A. W. Wright. — Vicinity of Bristol Street southward to Madison Street, City of Saginaw.
5. Mound Hill. — From new waterworks north to East Bristol St., City of Saginaw.
6. Kah-Bay-Shay-Way-Ning. — Centering near site of old Fort Saginaw (Fordney Hotel), City of Saginaw.
7. Mowbray. — On the east side of the Saginaw River, and nearly opposite Green Point in City of Saginaw.

2. TITTABAWASSEE RIVER

1. Green Point. — At forks of Tittabawassee and Shiawassee rivers on north side of the former.
2. Green Point Mounds. — One-half mile west of forks of rivers above mentioned on north side of Tittabawassee river.
3. Andre Flats. — On the river just east of the west city line and above Riverside Park.
4. Little. — Located on the sand ridges bordering the bottom lands around the ruins of the glassworks. Partly in City of Saginaw.
17. Merrill. — South side of river along river flats between the Pere Marquette Railroad Coal Branch and the abandoned Merrill Bridge, James Tp.
5. Riverside. — South of Pere Marquette Coal Branch and east of Bullhead Creek, James Tp.
6. Bayou. — South of Pere Marquette Coal Branch and west of Bullhead Creek, James Tp.
7. Miller. — Southeast and northwest of the point where corners of Sections 28, 29, 32 and 33 meet (Michigan Central Railroad crossing) in Saginaw Tp.
18. Stroebel. — Southwest from New Merrill Bridge Road.
8. Andrews. — On north side of river in Section 32, Saginaw Tp., just west of Michigan Central Railroad.
81. Paine. — One-fourth mile east of Frazer Village beyond ravine, Section 31, James Tp.
20. Smith. — Northwest corner of Section 6, James Tp.

9. Frazer. — On west side of Tittabawassec, in Scction 30, Thomas Tp. and Scction 31, James Tp.
91. Cavanaugh. — West of river and north of Gratiot Road along first terrace above flood-plain. Extends north over half a mile.
11. Branch. — In northeast quarter of Section 24, Thomas Tp., north of road near center of quarter section.
10. Branch Flats. — About two hundred rods west of State Street Bridge; Thomas Tp. Road crosses site.
102. Branch Flats No. 2. — Close to river and nearly opposite old bridge piers, in Sections 13 and 18, Thomas Tp.
101. Owen. — Surrounding Owen Cemetery in Section 13, Thomas Tp.
111. Ohmert. — In the eastern edge of the northeast quarter of Section 14, Thomas Tp., on both sides of the River Road.
121. Ure's. — North of the river in Section 11, Saginaw Tp., extending along the ridges southeast of Ure's Island, and near the road (North River).
12. Bryant's Trip. — At Bryant's Trip, in Section 11, Thomas Tp.
13. Fairview. — One mile above Bryant's Trip, on left side of road, quarter-mile south of road to Dice, and close to River Road. Northeast quarter, Section 10, Thomas Tp.
14. Renwick. — On the high grounds on and near the river in the southeast corner of Section 3, Thomas Tp.
141. Benson. — Running northward from River Road near the center of Section 3, along ravine in Thomas Tp.
122. Hackett. — North River Road where line between Saginaw and Tittabawassee townships crosses deep ravine opening into river.
142. Wickham. — Between River Road (west) and river in northwest quarter of Section 34, Tittabawassee Tp.
143. Vasold. — North of Vasold Cemetery on river flats, and along bluff in Section 28, northwest quarter.
144. McGregor. — Near the center of Section 17, Tittabawassee Tp., west of river.

3. SHIAWASSEE RIVER

11. German. — In northwest quarter of Section 7, James Tp., northwest of abandoned Pokagon Mine.
3. Bear Creek Cemetery. — Near center of Section 23, St. Charles Tp., on branch trail to Peonigoing.
2. Bear Creek. — Where corners of Sections 22, 23, 26 and 27 meet near and along Bear Creek, Albee Tp.
5. Fairchild Creek. — On Fairchild Creek in extreme southeast corner of Section 20, St. Charles Tp.
6. Big Rock. — On east side of Shiawassee River in Chesaning Village.
7. Chesaning. — On west side of river in Chesaning Village.
10. Chapman. — On northeast quarter of Section 21, on east side of river on Chapman Farm.
12. Ponto. — In northwest quarter of Section 28, Chesaning Tp., on east side of river.

13. Shako. — In that part of Section 28, Chesaning Tp., lying west of the Shiawassee River.
14. Pontiac. — In the northwest quarter of Section 31, west of the Shiawassee River.

4. BAD RIVER

1. St. Charles. — On the point between the north and south branches of the Bad River in St. Charles Village.
6. Beaver Dam. — Where Michigan Central Railroad crosses line between Sections 5 and 32, near St. Charles.
3. Beaver Creek. — North of diagonal road through Section 31, and near east section line, running west along ridges.
2. North Branch. — On north side of north branch where it crosses line, between Sections 5 and 6.
5. Potato Creek. — On high knolls in the southwest corner of Section 16, Brant Tp., near Potato Creek.

5. SWAN CREEK

1. Black Elk. — On east side of Swan Creek, near center of Section 10 Swan Creek Tp.
2. Beeman. — West of the creek, and one-half mile west of Swan Creek Station on Michigan Central Railroad.
3. Walker. — Three quarters of a mile north of Swan Creek Station on east side of creek.
4. Swan Creek. — South of the Gratiot Road and east of the creek in Section 27.
7. Pine Ridge. — West of the creek on sandy ridges a little north of the Gratiot Road.
6. Sand Ridge. — In Thomas Tp., at the point where the Pere Marquette Railroad crosses the line between Sections 33 and 34.
5. Geddes. — In northeast quarter of Section 21, Thomas Tp., west of the creek and near mouth of McLellan's Run.
8. Dice. — On sand knoll on section line road running west from Dice between Sections 4 and 9, one-half mile west of Dice.

6. CASS RIVER

111. Forbear Mound. — In southeast quarter of Section 24, Spaulding Tp., near Town Line Road.
0. Fisher. — North of Cass River where Grand Trunk Railroad crosses, and about in the center of Section 18, Bridgeport Tp.
1. Andross Mound. — Mostly in Bridgeport Village.
2. Cook. — South of Dixie Highway to river at Frankenmuth Junction, Bridgeport Tp.
32. Leasia. — On south side of river, a hundred rods west of Dixie Highway.
33. Curtis. — Two hundred rods south of river and a few rods east of Dixie Highway.

3. Vance. — Forty rods south of river in the eastern half of Section 25, Bridgeport Tp.
4. Satchell. — Beginning at town line between Bridgeport and Frankenmuth townships southeasterly to ravine at last bend in river. South of river.
22. Campau. — North side of the river in Section 30; eighty rods west of center of section.
7. Simons Cemetery. — Southeast quarter of Section 30, Frankenmuth Tp., on north bank of river, Frankenmuth Tp.
6. Dead Creek. — South side of river, northeast of mouth of Dead Creek in Section 29, Frankenmuth Tp.
61. Jerome. — Left bank of Dead Creek from near mouth southeast into Section 32 about half a mile.
11. Gugel Bridge. — South side of river, from Kiwanis Woods in Section 29 eastward across section line, and into Section 28 eighty rods, Frankenmuth Tp.
62. Weiss. — South side of Dead Creek where north and south quarter-line of Section 32 crosses it, Frankenmuth Tp.
12. Block. — South side of river near center of Section 28, Frankenmuth Tp.
121. Bierlein. — North side of river in Sections 27 and 28 near Lutheran Church, Frankenmuth Tp.
10. Huron. — On south side of river east of brewery, village of Frankenmuth.
9. Huron Cemetery. — Three quarters of a mile east of the main street in Frankenmuth, and forty rods south of the Tuscola Road, and on the north side of the river. On river flats.

7. FLINT RIVER

Note. — The left bank of the Flint is south; the right, north.

1. Mangamoosh. — North side of river in Section 34, near center of section, Spaulding Tp.
2. Foster. — On north side of river near center of Section 6, Taymouth Tp.
21. Foster No. 2. — South of river near center of Section 7, Taymouth Tp.
3. Kishkawbawee. — In north end of Indian Reserve, south side of river in Section 21, Taymouth Tp.
5. Leach. — North of river in the northeast quarter of Section 21, Taymouth Tp.
4. Peonigoing. — South side of river in vicinity of Indian Church, Taymouth.
7. Morse. — On north side of river, east of Taymouth Bridge, in Section 27, Taymouth Tp.
6. Taymouth. — On south side of river between Old Taymouth and river flats to southeast.
8. English Church. — South side of river along high bank west of Episcopal church.
9. McCormick. — Along high river bank at county line.

Saginaw, Michigan

THE ARIKARA BOOK OF GENESIS

MELVIN R. GILMORE

THE Arikara nation is one of the nations of the Caddoan stock. This stock includes the Caddo of Louisiana, the Waco of Texas, the Wichita of Oklahoma, the Pawnee of Nebraska, and the Arikara of North Dakota. Arikara is not the name by which this people call themselves, but the name by which they were called by the Mandan. They call themselves Sanish, meaning "people." Other Indian people they call San-sanish, while they call white people Sanish-taka, *taka* being the word for "white" in their language.

The tribes and nations of the Caddoan stock migrated originally from the south, from the borders of Mexico, northward into the Great Plains. In the migration of these nations northward the Arikara were in the lead, so in their final settlement they were found the farthest north of any of their stock. The Caddoan tribes brought with them from the south the practise of agriculture which they taught to other ruder tribes which they encountered. The cultivated crops which they brought with them from the south, and which they gradually acclimatized farther and farther north, were corn, beans, squashes, pumpkins and sunflowers. All these good food crops made for them a more certain and secure living than could be obtained by the less civilized tribes which depended wholly upon the harvest of wild plants. Agriculture, the cultivation of corn, had been practised by the Arikara for so many centuries that it was thoroughly ingrained in the national and individual life of the people. From time immemorial agriculture had been their life, so that their unwritten literature, their religious and social forms were imbued with allusions to their agricultural practises and products.

The northward migration of the Arikara brought them into the drainage area of the Missouri River many centuries ago and

they have been associated with that river ever since, so that it has had influence in the form of some of their rituals. Their name for this stream signifies "The Mysterious River." The former population of the Arikara nation was very greatly more numerous than in modern times since contact with the white race. In former times there were twelve villages of this nation. Each village had its own "Sacred Bundle," an object which we might liken to the ancient Hebrew Ark of the Covenant. The Arikara tell of a glorious and prosperous time of their people when they dwelt at the "Place of the Four Holy Lodges." This location was near the Grand River, a tributary of the Missouri River, in what is now South Dakota. At that time the people of the twelve villages were so numerous as to require four "Holy Lodges" or tribal temples to accommodate them in the celebration of their religious festivals.

It will be noted that the numbers four and sixteen, and the square of four, are conspicuous in their symbolism in the ritual and philosophy of the Arikara, as they are also in that of many other tribes of that region. As we proceed with the account of a certain ceremony, mention must be made of a personal name, Pahok, which was conferred upon me in the Pawnee nation. The Pawnee are, as said before, related to the Arikara, so since I made the acquaintance of the latter people they have always liked to call me by my Pawnee name.

The human mind is always searching for some explanation to account for all phenomena which it encounters. Consciousness of the immensity of numbers and the wonderful profusion of forms of living things in the world has always challenged the thinker to produce a reasonable explanation. Such explanation has taken various forms according to the strength and facility of the mind of the thinker. The seers and prophets of the Arikara nation in ancient time pondered the problem of the origin and progressive development of the living world. The volume of their thoughtful conclusions upon these matters has been formulated and orally transmitted from generation to generation in the recital of the rituals of their Sacred Bundles. Each of the twelve villages or tribes of this nation possessed a Sacred Bundle which was its pal-

ladium, constituting a mystic bond which drew the people of the village together and firmly bound them into a coherent unit.

When religious festivals were celebrated, a Sacred Bundle was brought into the Holy Lodge and opened to view upon the altar. Parts of the ritual proper to the occasion were recited by the priests, and the appropriate songs and chants were sung.

The various objects contained in the Sacred Bundle were emblematic of the several items of the sacred teachings. One of these revered tokens was a sheaf of thirty-four small sticks made from peeled shoots of sandbar willow. These sticks are of uniform size, about the diameter of a grain of corn and one span in length. This bundle of sticks was for the purpose of laying out a circular diagram employed in reciting the account of the beginning of all things in the world, and the progress from chaos to cosmos, from confusion to order, from crudity to perfection.

When this teaching is recited the thirty-four sticks are laid out on the ground in a circle surrounding the fireplace, with each one having its particular station, connoting a certain item in the doctrine. Part of them designate the fundamental powers or elements of the world, and part of them signify the stages of advancement of forms of life from the primitive to the more advanced. The circular space about the fireplace, typifying the space of the world circle, is first divided into quarters by laying down the first four sticks; then the remaining sticks are laid in groups determined by these first four which mark the quarters. The sticks are laid out according to their significance in relation to their prototypes in the cosmogonic order, as enunciated in the sacred teachings. Ritualistic ceremony accompanies the laying of the sticks and the reciting of the teaching.

I obtained one of these symbolic sheaves of sticks, and received orally the volume of their teaching from Four-rings, an old Arikara, since deceased, who was a priest of the Hukawirat Sacred Bundle, and thoroughly conversant with the lore of his people. This ceremony took place on August 29, 1924, in Four-rings's house about fifteen miles southeast of Elbowoods, on the Ft. Berthold Reservation, North Dakota. The information from Four-rings was afterwards verified and supplemented by information from Crowghost,

an old man who was exceptionally well versed in the ceremonies and sacred teachings, but who also is since deceased.

At the ceremony of transferring the sticks to me and transmitting to me their teaching, there were present only Four-rings and our interpreter and myself. The interpreter was a young man named Albert Simpson. We three were in a room of Four-rings's house. During the time while we were engaged inside, the wife of Four-rings went out and occupied herself with some work in her garden.

In the room in which we sat an ear of corn, dressed like a woman to represent Mother Corn, was elevated on the wall just as a crucifix is elevated on the wall of a Christian household, and was similarly venerated. Attached to this corn shrine was a braid of dried sweet-grass to be used as incense in ceremonies in which the corn shrine was employed. I have related and described the uses of such a symbolic ear of corn in "An Arikara Household Shrine to Mother Corn," *Indian Notes*, Vol. 2 (1925), pp. 31–34, publication of the Museum of the American Indian.

When we were seated in the room, Four-rings brought out the bundle of sticks, and, carrying them in his left hand, took position at a point to the southeast of the fireplace, and starting from that point walked hurriedly once around the circle of the fireplace in sunwise direction to the place of beginning, the southeast. There he laid down the first stick at the southeast quarter; then he hurriedly walked twice round the circle and stopped at the southwest quarter, where he laid down the second stick. Likewise, he walked hurriedly three times round the circle and stopped at the northwest quarter, and laid down the third stick; then four times hurriedly round and laid down the fourth stick at the northeast quarter. Then he walked round once again and laid down at the west side of the circle two sticks crossed at right angles to each other. Then he walked round to the east side of the circle and laid down two sticks there parallel to each other and extending east and west. Then he walked round and laid down two sticks by the one which had been first laid at the southeast; one of these was laid a little apart from the other. Next he laid four more in a group by the one at the southwest; then four

PLATE XXXI

Diagram of the thirty-four sticks laid down in the Arikara ceremony to represent the elements and the forces of the universe

more beside the one at the northwest; finally, the remaining sixteen beside the one at the northeast. (See Plate XXXI.)

All the sticks being now in place Four-rings returned and sat down. The interpreter, acting as pipe-tender for the occasion, filled the pipe and handed it to the old man. Four-rings took the pipe, lighted it and walked round the circle making smoke offerings, first to the southeast, then in turn to the southwest, the northwest and the northeast; then to the two crossed sticks at the west, then to the two sticks laid parallel to each other at the east. After this he walked round the circle once more and made smoke offerings successively to the several groups of sticks which had been laid down in association with each of the four sticks first laid down at the four quarters, namely, first to the two by the first stick at the southeast, then to the four by the stick at the southwest, then to the four by the stick at the northwest, and finally to the sixteen by the stick at the northeast. After all these smoke offerings had been made we three participants in the ceremony drew smoke in turn from the pipe, after which the old man smoked out the pipeful, cleaned the pipe and put it away in due form.

Then he rose and reverently took down from the wall the ear of corn and the wisp of sweet-grass. These he laid at the west side of the circle, near the two crossed sticks. Then he returned to his place, sat down, and began his formal recital of the sacred teachings:

"There is one supreme being of power and wisdom, the Chief Above (Nishanu Natchitak). He rules the world. But he gave Mother Corn authority over all things on earth. Nishanu Natchitak is above all, but he made Mother Corn intermediary with human beings on earth. Reverence and gratitude are due from mankind to Nishanu Natchitak for all the good things which we have, and to Mother Corn, through whose mediation we enjoy all these benefits.

"We lay down these thirty-four sticks in the way which you see in order to represent to our minds the teaching which we have received in regard to the constitution of the world, and the agencies which work the wise and good purposes of the Chief Above.

"All the different kinds and tribes of living beings, including the human race, the various kinds of fishes, reptiles, birds, mammals, all things which live and move in the water and on the land; all the tribes of flowers and grasses, of trees and shrubs, and every kind of plant — all living things in the world — were first contained and took substance within the womb of Mother Earth. With the first stirring of life in this state of quiescence there came to all living things an apprehension of the imperfection of their state, and they felt more and more an impulse to emerge from their passive condition, from darkness and restraint, to come out into the light, and to attain to liberty of movement over the surface of the earth.

"At that time of beginnings there were none of the living creatures as we see them now. There was no vegetation; no fishes were in the waters; no birds nor any insects in the air, nor were there any animals; there was no living creature of any kind in the light of the sun on the lap of Mother Earth. All were still covered beneath her bosom. All things were still in embryo. But the living creatures were exerting themselves and making all endeavor, for they strongly aspired to come up into the light and to attain to freedom. So they constantly continued to grope and to pray and to do their best to explore and find some way to accomplish the purpose. All the creatures were striving and doing their best, each in its own way; but they met many difficulties and obstacles which were hard to overcome. Different kinds of creatures tried to make their way through to come to the surface of the earth into the light and air. One of the first of the animal people which tried was the badger. Then the shrew, which the Arikara people called *suchit*, bored through the ground to the surface and came out into the light. But he was blinded by the brightness of the sun coming suddenly upon his sight. He drew back from the dazzling light, and so to the present time the shrew still lives most of the time just below the surface of the ground, and when he does come out on the surface he does so only at night. When the first opening thus had been made by the shrew people, then all the other people, that is to say, living creatures of all kinds, began to come forth from the opening of the earth. But it seemed that

after a time the earth began to close upon them, and all those which had not already succeeded in making their way to the surface were now held back. So it is that the snakes, the badgers, the gophers and several other kinds of animals still have their dwelling in the ground.

"Then a voice was heard which bade the people to travel toward the west, and promised that if they did so they would find a suitable place to dwell. 'Go forward with confidence,' said the Voice, 'and turn not back. If you turn back you will suffer.'

"So the living things which had come forth on the surface of the earth began to move, and they traveled forward in accordance with the admonition of the Voice. In their journeying they met many difficulties, many things which were dismaying to their spirits, many things which at first filled them with terror; but they were continually exhorted and encouraged by the mysterious Voice, and so they kept on and made progress, overcoming one obstacle after another, never being completely balked and never turning back.

"As they traveled they came to a great water. To overcome this difficulty their powers must be exerted. There seemed to be no way to cross. Then came a mysterious bird which made a way through the water. But before all had overcome the difficulty, the waters closed on part of them; and so we still have the people of the waters, such as the fishes of all kinds, and all other creatures which live in the water.

"They came to an impassable cliff. The mysterious bird which had helped them before now again helped them; it flew up against the bank and broke out a way for passage.

"After a time they came to a great, dense forest which seemed impenetrable. Here again, as before, they prayed and called upon all the elements of the world, and tried their best to open a way to pass through this great forest. The screech owl found a way and the other people followed. But some, as in previous cases, did not win through. These remained in the woods and still live there. These people are the deer, the moose, the bears, the porcupines, and all the forest-dwelling kinds, large and small.

"At that early time the people were unorganized. They had

no chief to guide them. They had only the guidance of the mysterious Voice which counseled and encouraged them. But also they had to learn many things by experience, for there was no other way. They had no knowledge of what was good to eat and what was not good, and what was harmful, and they knew not how to clothe or shelter themselves. It was the time when the trees were putting forth leaves. Being hungry they tried eating leaves, stems and roots of various plants. They tried to cover themselves with grasses and leaves and branches.

"And Nishanu Natchitak blessed the people of the human race and showed them still greater favor. To those who sought earnestly with prayer and fasting to know his will he revealed mysteries and gave power. He gave them a Sacred Bundle and the pipe to be used in prayer, and taught them religion and instructed them how to worship. And as our ancestors were instructed to do so long ago, so do we even to this day. And the Chief Above gave to the people gifts of roots of many kinds of plants from Mother Earth, that these should be medicines for the healing of wounds and the cure of sickness.

"And the Chief Above blessed all the living creatures on the earth, the trees and vines and flowers and grasses, all the growing, living things upon the lap of Mother Earth which look up to the sun; all the animals on the earth and in the waters, and the fowls of the air. He blessed all the plants and animals and said that they are all friends of human beings and that human beings should be friends to them; that animals and plants should not be abused, but should be treated with respect. It was taught that the pipe should be used to offer smoke to all things which the Chief Above had blessed. And so it has been done by our people through all the ages from that time until the present day.

"It is said that when the smoke offerings first were made to all the powers and elements of the world there were two dogs sleeping at the time which were forgotten, and so no smoke offering was made to them. They awoke and found that they had been forgotten and they were aggrieved and angry because of it. Therefore they said to the people: 'You neglected to make smoke offerings to us when all other beings were remembered. In

punishment for your neglect of us we shall bite you. And we shall never leave you, we will always abide with you, and we shall follow you forever.' The names of the two dogs were Sickness and Death. Wherefore it was said: 'Sickness and Death shall be among the people always.'

"And it is even so with all things in the world. Our powers increase and then diminish; we arise and go forth in fresh strength, and then we lie down in weariness; we rejoice in health, and then languish in sickness; the sun arises and shines in splendor, and then it declines and is overcome by darkness; the brightness of day is followed by the darkness of night; the moon waxes to fulness and then wanes away; the flowers bloom in springtime, and are cut down by the frosts of autumn; the wind blows, and again there is calm; water is lifted in vapor and floats in the clouds of the sky above the earth, and again it falls upon the ground in rain; springs rise in the hills, and their water flows down into the rivers and away to the sea. So changes come to all things; all die and all are born anew.

"As the people traveled onward, guided and encouraged by the mysterious Voice, they at last found themselves in a good land. There were streams and woods and open grass lands. There were good fruits in abundance, and many kinds of animals and birds were numerous.

"And now in this good land there appeared to them a beautiful woman, a stranger. She came into their midst and greeted them with smiles. And even while she was still far off the people smelled from her a fragrance like that of the holy sweet-grass, and then like the odor of the holy cedar tree, then like the fragrance which comes from a fresh green meadow where young grass is springing, then of the wild plum tree in bloom, of the blossoms of the choke-cherry, of the June-berry, of the blossoms of the wild grape, then the fragrance of the prairie wild rose, and of the blossoms of the evening primrose as they scent the air early on a soft dewy morning in the sand hills, and of many other fragrant wild plants of prairie and woodland, and the delightful fragrance which comes from a corn-field when the zephyrs slightly rustle its leaves. The odors of all these and many other lovely plants came to the

people as their beautiful visitor approached, even before she came near. The people invited her to enter a lodge, and made her sit down and rest in the place reserved for honored guests.

"After she had rested she spoke to the people who were assembled there. She said: 'Why do you seem so fearful of me, and so strange toward me? You have seen me before.' Then a wise man said: 'I believe you are the one whose voice we have heard, the Voice which has directed us on our way.' She replied: 'Yes, it was my voice which you heard. And now I have come to you to give you good teaching from my father, who is also your father, the Chief Above. He loves you and cares for you. And that is why I am sent to you.'

"And the lovely visitor, whom now they knew to be Mother Corn, taught them with words of wisdom in matters of religion and of the high and deep things of life, of human beings in their duties to the Chief Above and to all the holy and mysterious beings who are aids and assistants to the Chief Above. She also taught the people right ways of living with respect to one another and to all the living things in the world, the plants and the animals.

"She also gave the people instruction in many useful arts. She taught them how to build houses to keep them comfortable and protect them from the inclemencies of the weather. They were taught that the house should be the home for the family as the world is the home of the human race. The structure of the dwelling house, and also of the Holy Lodge, should be symbolic of the structure of the world. As the world extends about us like a great circle, so should the house be circular in ground plan. The circle of the world is a unit, but it consists of four quarters. In the structure of the world the sky appears like a dome above. So in the structure of the house there shall be four main posts, and about these a circle of twelve shorter posts, all supporting the domed roof. The four quarters of the world are the aids of the Chief Above to perform all his will in the world. So the four main posts of the house are dedicated, one to each of the four quarters.

"So when we lay down these thirty-four sticks to explain the structure of the world, we lay the first stick at the southeast quarter. This represents to us the light of the Sun. It also represents

all vegetation. The power of the Sun is wholesome and revivifying. It will drive away diseases and the powers of evil. When sickness comes among the people the smoke of the pipe is offered at the southeast post of the house as a prayer to invoke the potency of these healing powers for deliverance, safety and health.

"In the southwest quarter is another of the powers acting under the Chief Above, the one which gives us the water of life, the Thunder. We lay down the stick at the southwest to represent the Thunder, the giver of the water of life. The stick at this quarter also represents our animal friends, chief of which is the Buffalo. When we contemplate the stick at the southwest we are reminded of the showers of rain which revive and refresh all vegetation and all animal life; we think of the sweet springs, the pleasant streams, and of the cool lakes which give habitation to the fishes and the water-fowl and shore birds. We think also of the dragon-fly, of the butterflies, and of other still more humble forms of life. The pipe is offered toward the southwest as a prayer for the needful gentle showers of rain when the fields are parched and dry, and also as a prayer that destructive storms of beating, torrential rain may be averted.

"In the northwest quarter is the Wind, the breath of life, and all the powers of the air. It is the breath of life which gives motion to all things in the world. When the water which the Thunder gives flows away down the streams to the great sea, it is lifted in vapor on the air and is carried back by the Wind and distributed again upon the land in rain. It is the Wind which carries the needed moisture to all vegetation. When we lay down the stick at the northwest quarter we think on all these things. We also think of the birds and of that class of insects which includes the grasshoppers, crickets and fireflies. We think also of the echo, the word-carrier. That is something which is marvelous. And we think of the ants for their admirable and wonderful ways of life, working together, as they do, so perfectly. The pipe is offered toward the northwest as a prayer that gentle and refreshing breezes may be breathed over the land, and also that destructive gales may be averted, and that dry and withering winds shall not destroy the crops.

"The northeast quarter is dedicated to Night, which brings rest, and which restores and refreshes all things. This quarter is dedicated also to Mother Corn, the mediator, who brings us peace and many other good gifts from the Chief Above. When we contemplate the stick which is laid at the northeast we think of the many good things which Mother Corn has done for us, and of her guidance and encouragement through vast difficulties and dangers in the past, and of the hope she gives us for the future. We think of the successive stages of progress through which our own race and all other living things have passed from the beginning till now; from formlessness to perfection of form; from ignorance to knowledge. Of all these things are we reminded when we contemplate the stick which is laid down at the northeast.

"It is from the northeast quarter that steady, refreshing rains come in summer, and from this quarter also come good snowfalls in winter. It is from the good favor of Mother Corn that bountiful gifts of rain and snow come from the northeast to supply the needful moisture for the abundant growth of our crops and of all vegetation. Smoke offerings are made toward the northeast when we wish to entreat Mother Corn for her favor or to give thanks for her bounties already received.

"At the west side of the house there shall be an altar. It is here that a Sacred Bundle shall be opened during the celebration of mysteries. During the celebration when thanksgiving is made for the year's crop, a stalk of corn is placed here before the altar. This is to represent the genius of Mother Corn, who is the mediator of the Chief Above to bring to us all the good gifts which we have in the produce of our fields and gardens, and the harvests of the wild plants and the products from the animals of the hunt.

"Mother Corn has taught us that smoke offerings should always be made toward all four quarters on all occasions, and that at feasts, before we partake, offerings of the food should be made in order that our food may be blessed to us and that we may be blessed in the eating. We should remember and be thankful to all these powers and elements of the world about us and to the Chief Above, who ordains all things in wisdom for our good, and

to Mother Earth, in the shelter of whose bosom we rest, and from whose breast we are fed.

"You will observe that there are two sticks crossed at the west side of the circle, at the place of the altar. They are so placed there to commemorate an event in the life of our nation in ancient time, a sign of Mother Corn's care for us. It is told that once on a time while our people dwelt at the Place of the Four Holy Lodges, a priest dressed a stalk of corn in the manner in which a woman is dressed and took it down to the shore of the Mysterious River (which white people call the Missouri River) and placed it in the current, asking it to travel back down the course of the river along which our people migrated into this land. He asked that it should make a journey to the land of our ancestors and then return to our people and bring us a message from the ancient home of our people. So the stalk of corn floated away down the stream and disappeared from the sight of the priest.

"The next year a woman who was a stranger appeared in the village. She went directly to the Holy Lodge and entered. All the people were astonished and were wondering who the stranger might be and what might be her mission. The priests assembled at the Holy Lodge and took their places and waited respectfully until the stranger should rest and be refreshed with food which was brought for her, and should be composed and ready to announce the place from which she had come, and the purpose of her coming. Finally the priest who had sent away the stalk of corn the previous year, revering it as the symbol of Mother Corn, and asking it to make the journey and fetch tidings from the land of our ancestors, recognized in the raiment of the stranger some article of attire with which he had clothed the stalk of corn which he had sent away the year before. So now he knew that the stranger was really Mother Corn who had returned in the form of a woman. And he greatly desired to hear what should be the message which she had brought, for he was sure it was something wonderful.

"When the stranger had finished the repast which had been provided for her she signified that she would speak, so all the assembled priests and people gave earnest attention to what she

would say. She told them she had come a long journey from the land of the ancients, and that the purpose of her visit was to correct their errors and to guide them in the right way of living. She bade them ever to be industrious, to provide for those who should be dependent upon them, and not to indulge themselves in ease; to be not envious nor covetous, to live peaceably with their neighbors, to avoid contention and quarreling, to be generous and forbearing, to practise hospitality to strangers, to be kind to the the poor, to be considerate toward the weak, to show tenderness to children, to give instruction and advice to the youth, to give good counsel to the erring and restore them to the right way. She also enjoined them to be truthful and just in their dealings, and faithful to trust. She exhorted them ever to be brave to endure suffering and courageous to defend their people against an enemy.

"She then proclaimed her purpose to conduct an expedition against the enemies of our people. She called for volunteers, at the same time warning them that the expedition might entail great danger. All considered that this unusual circumstance must portend some extraordinary and wonderful event ordered by some great mysterious power. A host of young men came forward at her call, wishing to distinguish themselves and to be recognized by whatever mysterious power prompted the proposed action. Out of the number who presented themselves the strange visitor chose twelve young men.

"It was the time of green corn harvest when the strange visitor arrived at the village. Now when the twelve young men were chosen for the expedition they began at once to make their preparations. When they set out upon their adventure it was the beginning of the ripe corn harvest. After they had marched for some days away from the village they met an overwhelming force of the enemy. They fought with great spirit and courage, but the enemy was too powerful for them, and but one man escaped alive; all the others, together with their strange leader, were slain. The one man who escaped made his way back to the village after great difficulties, and brought the sad news of the disaster.

"Another war party was now quickly recruited. The sole survivor of the former expedition went along as guide to this second party, and they marched as soon as possible to the scene of the recent disaster. When they arrived at the place they found the bodies of the eleven men who had perished, but the body of the strange leader was nowhere to be found, nor any trace of it. But at the spot where she had been killed they found a stalk of corn standing with two leaves. Then they knew that the woman who had been their leader was really Mother Corn, and that it was in the form of the mysterious visitor that she had come to counsel them and give them instruction and encouragement, and that now she had finally gone away from them to the Chief Above, from whom she had come at the first. And they knew that she had left the stalk of corn standing at the place where she had disappeared from human sight to be a token to them and a promise that she would live ever more by the power of the Chief Above, and that she would be forever the mediator of his wise purposes and good favor toward mankind, and that she would always be their unerring but unseen guide.

"It is for this reason that we have these two crossed sticks at the altar place. And that is why we place a stalk of corn before the altar in the ceremony of thanksgiving for the harvest. We do that so that we may have with us in our thanksgiving a visible token of the invisible presence of the spirit of Mother Corn, our leader and guide and good counselor and kind and bountiful mother. And that is why, when our harvest thanksgiving is concluded, a group of good old women who have lived blamelessly in the precept and example of the virtues of industry, hospitality, quietness and kindness taught by Mother Corn, are chosen to dress the stalk of corn before the altar, the stalk which has participated with us in our rejoicing and thanksgiving, and to carry it down reverently at evening time to the Mysterious River (which white people call the Missouri River) and to place it in the current so that it shall float down the stream, passing all the places where villages of our people existed in ancient time, carrying to them the message that our nation still lives and is hopeful and thankful, and that Mother Corn has ever been and still is faithful to her

promise in guiding and sustaining our people through all the years.

"You will observe that there are two sticks at the east side of the circle, the place of entrance of the lodge, and that these two sticks are laid parallel to each other and lengthwise east and west. The stick on the north side in this pair represents the Standing Rock, the most enduring and ancient element of the earth. So the Rock stands to help the people to make them strong and enduring. This was the promise, that the Rock, from its strength and endurance, should give help to the people. We call the Rock 'grandfather' as a title of honor and respect because it is old and strong and steadfast.

"The stick on the south side in this pair represents the Cedar Tree. The cedar is a wonderful tree; it is always green even in winter; when other vegetation appears as if dead the cedar yet is living and green. And in drought or wet weather the cedar is ever the same; and it has power to maintain itself not only in good ground, but also in poor and dry ground where other trees cannot grow. The promise was that the cedar tree will stand to protect the people and help them to long life. As a title of respect we call the cedar tree 'grandmother.'

"Now we come to the sixteen sticks which are laid beside the stick of the northeast quarter, the one which represents Night, the time of rest, and Mother Corn, our guide. These sixteen sticks teach us concerning the stages of progress through which we and all living things in the world have come since the beginning.

"The first stick in this group of sixteen tells us that in the beginning we and all living things, all plant and animal life, were covered within the womb of Mother Earth. Although life then existed in essence, yet there was no consciousness or movement.

"The second stick tells us that the spirit of Mother Corn, as mediator of the Chief Above, quickened all things with life and movement.

"The teaching of the third stick is that with the quickening of life all things moved toward the surface of the earth, but there was yet no power to stand up.

"The fourth stick tells us of the promise which was given that

human beings were to stand erect. The bodily form was not yet perfect, but this power was to be given in the future.

"The fifth stick tells of the promise that the human form should be perfected. That was the purpose of the Chief Above, and that gift was promised. There was yet no intellectual power.

"The sixth stick tells of the complete perfection of the physical form of human beings, and of the promise of human intelligence and intellect.

"The seventh stick tells of the perfection of human physical form, and of the gift of mind and intellectual power. But human beings did not yet have freedom to move about at will upon the surface of the earth. This freedom was promised. The surface of the earth was still without order, but there was the promise that in time to come order and beauty should prevail in the world.

"The eighth stick tells of the accomplishment. The surface of the earth was now beautiful in order and green with vegetation. It was now ready to receive human life. It had been promised from the beginning that human beings should arise, coming up from lowly condition, to walk about in freedom over the land.

"The ninth stick tells of the invitation to the people to come forward and take their place upon the earth.

"The tenth stick tells of Mother Corn leading the people, all living creatures, those most advanced and those more lowly, adults and children, in constantly moving upward and forward.

"The eleventh stick tells of Mother Corn bringing the people upward. It tells that they had now come very near to the freedom of the earth's surface. It tells of the promise that their deliverance was to come and light was to appear.

"The twelfth stick tells of Mother Corn leading the people out until they were just at the border of freedom, and enlightenment appeared.

"The thirteenth stick tells of Mother Corn leading out the people part way, and of the promise of final complete emergence.

"The fourteenth stick tells of the complete emergence of the people into freedom upon the surface of the earth, of the injunction that they should move forward, and of the promise that they should find a place suitable for human habitation.

"The fifteenth stick tells of the complete freedom of the people upon the earth, and that Mother Corn was leading the people on toward the place where they should dwell.

"The sixteenth stick tells how Mother Corn had led the people to a place where they might abide; and there they settled and sought how they might dwell in the land and sustain themselves. All was now complete. There were mountains and plains and hills and valleys. Among the hills were sweet springs of water; there were pleasant streams and lakes. Grasses and herbs and shrubs and trees and flowers and fruits made all the land pleasant and beautiful. In the waters were all kinds of fishes and other forms of life; on the land were four-footed creatures, large and small, also creeping things of all kinds. And in the air were all kinds of birds flying about; those which live among the woods and those upon the prairie, and other kinds which live by the water of the lakes and ponds. There were those which build their nests and rear their young among the grasses, other kinds which build nests in the branches of trees, and still others, like the eagle, which fly very high above the earth and build their nests among the rocks and most precipitous cliffs. And there were insects of a multitude of kinds, those which creep and those which hop about upon the ground, those which fly at no great height above the ground, and those like the grasshoppers which rise to a great height and fly over long distances in such immense numbers that they are like clouds in the sky. There were bright insects like the butterflies and dragon-flies flitting about in the sunshine, and there were the moths which come out among the flowers only at twilight. And there were the fireflies which flit about over the meadows showing their lights through the darkness like tiny twinkling torches.

"The promise was that all things should be ready for man's use and enjoyment along with that of all the multitude of other living things. There was provision for man's needs of food and clothing and shelter. Human beings were bidden to exert themselves and exercise the powers which had been given them to help themselves and use what was provided for their needs. All living things were to be friends and helpers of each other, and

human beings should give due respect to all other things and not abuse them.

"But the people were yet without experience. They did not know what they could eat nor how they could shelter themselves from storms. And they did not know how to make fire to warm themselves when they were cold.

"They knew not how to protect their bodies from the burning rays of the sun, from the buffeting of the tempests of wind or from the pelting of cold rain and hail. They tried to clothe themselves with grass and with reeds, with leaves and with branches of trees.

"As they knew not what was good to eat, in their hunger they tried leaves and stems of many kinds of plants, and also bark from many kinds of trees. With pointed sticks they dug up many kinds of roots and tubers and bulbs. They tried all these for food. They tried many kinds of fruits which they plucked from the trees and bushes. Some things they found good and pleasant to the taste and satisfying to their hunger. But many things they found bitter, pungent, acrid, nauseous, or otherwise unpleasant, and some were found very disagreeable. Also many things which they tried in their ignorance were found harmful. Thus many persons were made ill, and some died. They were ignorant and weak, naked, cold, hungry, blistered by the sun in hot weather and pinched and shivering from cold in time of frost. They were miserably needy. It was very pitiful.

[At this point in his narration Four-rings broke down, his voice failed, tears streamed down his cheeks, and he wept aloud. After a little time he recovered himself, wiped away his tears, and apologized for his weakness, saying, "I am sorry, but I cannot help but weep when I think how pitiful was the condition of the people in that time." Then he proceeded with his account.]

"They knew not how to shelter themselves from the pitiless storms. A Voice was heard which told them that the Rock would be their help. So they looked to the rocks for aid, and took shelter in the caves. The mysterious Voice which was heard promised that the Rock would give the people strength.

"The people were ill and in need and buffeted by the strong

winds. The Voice again was heard speaking to them, telling them to lay hold on the Cedar and that it would help them. They heeded the counsel of the Voice and resorted to the Cedar. The Cedar comforted them and promised to help and protect them. So they had rest and quiet from the storm in the shelter of the cedar trees, for the Cedar was very strong and able to withstand all the angry gusts of stormy wind. And cedar leaves and twigs were used for incense and for medicine also. As a mark of gratitude and respect the Cedar is called 'grandmother.'

"Now we shall hear the meanings of the other groups of sticks. First we consider the group at the southeast. There you see two sticks besides the one which was laid to represent the Sun. It has also another significance. Not only does this stick betoken the potent and wholesome power of the light of the Sun, but it also signifies vegetation. It represents all vegetation in general. The people were ignorant, poor and needy, naked, barefoot and hungry. They rested in the caves of the rocks and on the grass in the open, wherever they happened to be when they became weary.

"And then a voice was heard which encouraged the people and gave them hope for better things. It was the voice of Vegetation speaking to them, making the people welcome into the world of living things, offering friendship and companionship, and promising that mankind should grow and increase as they saw all vegetation growing and prospering on earth. And Vegetation thus offered the people aid and comfort. So the people were gladdened and encouraged, for all the wonderful variety of vegetation was very beautiful to the eye in its many shades of restful green, and in the joyous and delightful coloring of the multitude of bright flowers.

"Of the two other sticks laid down here the one is to represent all the trees and wild fruits and other friendly, useful wild plants which promised to give their help to the people. So the people found many fruits very pleasant to the taste and wholesome and nourishing to their bodies. Some trees gave sap from which they could make sugar; many kinds of trees gave wood useful for various purposes. And there were plants which gave roots good

for food, and other gave seeds, and still others gave other parts good for food.

"The other stick in this group is laid a little apart from the one next to it. This stick, separate from the one before it, is to represent the promise which was spoken by the Voice which was heard, a promise foretelling that a time would come when the people would not be dependent upon wild plants only, but that certain useful plants would be protected and propagated by mankind and their quality would be improved by cultivation. By this means the people would have a better quality and more certain quantity of plant products than they had before. That was the promise given by the mysterious Voice. And the promise was later fulfilled in the crops of corn, beans, squashes, pumpkins and sunflowers. So the people found Vegetation helpful and friendly in many ways. And so smoke offerings are made toward the southeast in grateful recognition of the blessings of the sunlight and for the friendship and good gifts of Vegetation.

"In the southwest is another of the aids of the Chief Above, the one which brings to us the wonderful gift of the water of life. That is the Thunder. So the southwest stick is to represent the Thunder. But it also represents our animal friends, the chief of which is the buffalo. It was promised that the flesh of the buffalo should be our main supply of meat; and that its bones, its sinew, its horns, its skin and other parts should be useful to us for many varied purposes. That is why a beef must be slaughtered and given for a public feast, and the choice parts offered as a sacrifice to the Chief Above when a Sacred Bundle is opened to have a thanksgiving ceremony in honor of Mother Corn. This requirement is strictly prescribed. This honor is paid to the Buffalo because it has contributed more to our benefit than any other of our animal friends.

"By this stick at the southwest quarter a group of four other sticks is laid. The first of these four is to represent the water of life, that element so necessary to all life in the world. This stick represents the rivers and creeks and all streams of water which flow through the land, the lakes and all bodies of water which supply the needs of the living creatures, the rains which descend

from the clouds wafted by the winds of the sky over the land, and the refreshing dews which revive the drooping vegetation in the cool of the evening and the night, when the restful dusk has come after the blazing rays of the sun are withdrawn. It was promised that water would be given to supply the needs of all living creatures.

"The next stick represents the springs of water which issue in the hills and flow down through the joyous whispering brooks, finally reaching and adding their waters to the rivers forever flowing on down to the mysterious sea. But these sweet water springs first supply the grasses and violets and other shy and gentle little people which dwell by them.

"The next stick represents the worms and other humble forms of animal life dwelling in and under the ground. We are taught to consider and to remember that the most lowly creatures have their proper place and work, and the world would not be perfect without them.

"The next and last stick in this group represents those flying creatures which first issue from the egg in a larval form, then pass through a quiescent stage in the pupal form, and then finally come forth in a very different form, winged, and flying freely in the sunshine of daytime or the twilight of evening time. This class of flying creatures includes butterflies, dragon-flies and wasps, which fly in the daytime, and various kinds of moths which flit about among the flowers in the twilight.

"Now we come to the group of sticks laid at the northwest quarter of the circle. The stick which was first laid at this quarter we said was to represent the Wind, that aid of the Chief Above which gives action and movement to all things. Without the air, the breath of life, mankind and animals and all vegetation would die very quickly.

"Of the four other sticks laid down alongside the one which first was laid to represent the Wind the first of the group represents all those forms of insect life which emerge from the egg in the form of adults, without first passing through the larval stage. This class of insects includes grasshoppers, crickets and fireflies. All these have their proper place in the world.

"The next stick of this group represents all kinds of birds.

Some kinds of birds are helpful to vegetation by keeping a check on those insects which might destroy it if they became too numerous. Other kinds of birds, such as owls and hawks, are a natural check against some other kinds of birds which might be destructive if they increased out of bounds, such as blackbirds; and the owls and hawks also check the inordinate increase of rodents, such as rabbits, ground squirrels, and mice, which might do much damage if they became too numerous. And there are other kinds of birds which are helpful to us by giving us their flesh and eggs for food and their feathers for use and beauty.

"The next stick represents Echo, which is said to have life, though it does not exist in bodily form which we can see. And because the echo is mysterious and wonderful we pay it reverence and give it the respectful title of 'grandmother.' A grandmother is wise, the teacher of the family. Her words carry to the younger generation the wisdom of experience. And Echo is the word-carrier in the world. It is by words that the fruits of one person's experience can benefit many other persons, even the whole people. In this way improvement in methods and manners may come to be, and thus conditions of life become better. So in the cultivation of plants improvement has come by the results of observation and experience being passed from one person to another, and thus the quality of cultivated crops has been conserved and increased.

"The next and last stick in this group represents the ants, those small but very wonderful creatures whose works we see everywhere in the land. There are various kinds of ants; some dig out chambers and passages below the surface of the earth. There they live in underground villages, carrying out the soil and laying it in circular embankments about the entrances to their underground dwellings. Other species build mounds of gravel, and still others of sticks, which they lay up in domelike form similar to the form of the earth-covered houses of our people. And in these ant villages the ant people are always busy. They are careful of their young, they lay up stores of food, and all about their mounds they keep the ground clean and neat, cleared of all rubbish and all weeds. They work together, each for all. And

thus by coöperation their condition is improved. The ants are an example for human beings. Mother Corn has taught that human beings should coöperate and help one another as the ants do. When a house is to be built the neighbors should come together and help. The slaughtering of buffalo and other kinds of work also require the coöperation of many persons for success.

"Mother Corn taught us that all animals, even such small and seemingly insignificant creatures as the ants, are endowed with the sacred and wonderful quality of life, even as we ourselves are, and that all the different kinds of animals are to be our friends and companions. Though they may be small and humble, and we may think them of no account, we should remember that they have the dignity which belongs to the mystery of life, and all have their own special gifts of power. If we sit down by an ant-hill we may observe them all working, performing their own tasks, bringing material for their dwellings, feeding and caring for their young, all doing their part in the world. We should consider their ways and think of them as partners with us in life; and we should treat them with respect. We should think of them as our relatives, part of our family.

"Now we have finished the round of the circle and have considered the meaning of all the groups of sticks, and each stick in each group severally, in their symbolism of elements and powers in the world, and of the progress made from the crudity of the first to the completeness of the last stage as it had been promised by the mysterious Voice.

"Mother Corn has taught us that these four quarters are her guards and helpers on earth; and she has taught us that we should always remember, when we have a feast, to make offerings to all these four in acknowledgment of the good gifts we have received and so to show our gratitude and pray for continuance of her favor. She taught us that, when we have ceremonies in her honor, we should lay two crossed sticks at the west side of the circle before the altar. These crossed sticks are to represent her, for the corn-stalk in its growth appears as a stem with a root and a growing point, and with a leaf at each side; so we see it in the form of a cross, as we show by the two sticks."

When the old man had finished his lecture he brought a piece of dried meat on a plate and placed it as a reverent offering before the ear of corn which had been reposing near the two crossed sticks at the west side of the circle. This ear of corn was a symbol of Mother Corn and so was to be treated with becoming reverence. Then he gathered up again the thirty-four sticks and tied them together in a bundle once more.

Then he said a prayer of some considerable length, commending me to Mother Corn, since I had been given her teaching and was about to assume the custody of the bundle of sticks and the authority and responsibility of the teaching. In his prayer he mentioned me not by my legal name, but by my Pawnee name Pahok.

In his prayer he made allusion to the ancient Arikara prophecy that in future time a strange people would come into the land, a people of different color, and of strange habits and customs, who would interfere with the ancient customs of the Sanish (Arikara). He prayed that through the work of Pahok the holy teachings of Mother Corn might be put on record and perpetuated for all time so that the Sanish-taka ("white people") might come to a knowledge of these holy teachings, and also that they might be preserved for future generations of the children of the Sanish when the old people all should be gone and the ancient teaching and customs would otherwise be lost and forgotten. His prayer commended Pahok to Mother Corn and to the Chief Above. Even though he be Sanish-taka ("white man"), yet he had proved to be united in mind and heart with the Sanish.

Then he had me kneel down by him and receive from him in ceremonial manner the sheaf of sticks. This ceremonial act of transmitting the bundle of sticks signified the granting of authority to promulgate the teaching of the doctrine symbolized by the sticks. This ceremonial of formal transfer was made thus. The old priest, grasping the bundle of sticks in his right hand, extended it toward me and I grasped the bundle in my right hand with a clasp linked to his. Three times we gripped and relaxed, and the fourth time we gripped I retained my grasp and he relinquished his, leaving the bundle of sticks in my hand. At the

time of the fourth gripping and his final relinquishment my left hand was extended along his right arm, I drawing my left hand downward to the bundle of sticks just as he relinquished his grasp leaving the sticks in my right hand, thus signifying my assumption of custody, authority and responsibility.

The ceremony was then concluded by a prayer of the old priest commending Pahok to the care of the Chief Above through Mother Corn, praying that Pahok might have a safe return home, that he might meet his relatives and friends again in health, and that he might prosper in all his undertakings.

University of Michigan

THE HAND AS AN INDEX OF BODY-BUILD

CHARLES H. GRIFFITTS

DURING the last few years there has been a renewed interest in individual and group differences in body-build. This interest seems to have developed independently in several different fields. Kretschmer's work [1] on the relation between body-build and different types of insanity is regarded as significant by a large number of psychologists and psychiatrists, the theory being that differences in body-build are indicative of differences in the general constitution of the individuals. Physical education directors and life-insurance medical directors also are becoming more and more interested in differences in body-build. Height-weight tables are in general use in physical education and in medicine. However, it has been recognized by many of those who use such tables that some of those individuals who are "overweight" according to the tables are as a matter of fact not obese, but in very good condition. They are the stocky, heavy-set individuals. I have found a considerable number of students who worry because they are overweight according to the height-weight tables given out by the health department, although they may be in athletic training, in good health, and in no sense obese. Others worry because they find they are 15, 20, or even 25 pounds underweight, persons who are also in good health, and who seem to have adequate nutrition. The difficulty arises from the fact that some are of the Percheron type and others of the Arabian type, and we use the same norms for both types. The result is that the Percherons are rated as overweight and the Arabians as underweight.

Several attempts have been made to remedy or alleviate this situation, which may be only mentioned in the space at our dis-

[1] Kretschmer, E. (translated by W. H. J. Sprott), *Physique and Character*. Harcourt, Brace and Co., New York, 1925. Pp. xiv + 268.

posal. Many other body measurements have been suggested as offering a better criterion of normal weight than height. These include sitting height, chest circumference, hip diameter and shoulder diameter. Some of these seem to show a higher correlation with weight than height shows with weight, and also have the added advantage of showing a greater variability than is found in height. Some have questioned the practice of inferring weight, which shows high variability, from height, which shows less variability than almost any other measurement. The use of height might be justified if it were more closely correlated with weight than other measurements are.

Another attempt to solve the difficulty is to be found in the height-weight tables prepared to show normal weights for three different builds; the slender, the average, and the stocky. This procedure undoubtedly represents a step in the right direction. One objection to it arises from the difficulty of knowing just where to draw the line between the slender and the average or between the average and the stocky.

Certain aspects of my own work have given me a general interest in the matter of differences in body-build and coördinate variations. My interest in the human hand as an index of body-build was aroused almost by accident, as a by-product of a study of the relation between hand measurements and hand or finger dexterity. As a sort of by-product of this study I found that the width of the hand alone showed a higher correlation with weight than the correlation between height and weight. This led me to compute other correlations which I shall now present.

Before calling your attention to these correlations, a few words should be said about the data that were used. The correlations are based on the measurements [2] of but sixty men. They were an "unselected" group, mostly sophomores, and apparently represented a truer sample than we might ordinarily expect to get in so small a group. Army statistics based on 868,445 recruits during the World War show approximately the same means and standard deviations for height and weight as those for our subjects.

[2] These measurements were made by E. C. Roberts, H. J. Yelland and H. E. Stricker.

The correlation between height and weight for the Army data is 0.48, while for our data it is 0.45. Our measurements were taken with coats off but with shoes on, which makes them comparable to medical data, but allowance for clothes and shoes must be made in comparing our data with the Army data. Table I is given as a means of comparing our data with the Army data.

TABLE I

Data on Height and Weight

	Army data	Our data
Height, Mean	67.49	69.78
Height, S.D.	2.71	2.47
Weight, Mean	141.54	151.77
Weight, S.D.	17.42	17.32
r, weight and height	.48	.45

The correlations obtained from our data are given in Table II. They show that weight is more closely correlated with some of the hand measurements that it is with height. Table III shows correlations between weight and other body measurements secured by Miles [3] at Leland Stanford University. Comparing his results with ours, we find that some of our hand measurements show a higher correlation with weight than any of his measurements of the body trunk. It is somewhat surprising to find that so small a member as the hand is apparently a better index to the weight of the whole body than measurements of the body trunk. Apparently the hand is the best known index of the net result of all the various factors which have influenced the development of the whole body.

It must be admitted at once that Miles's measurements were all of essentially bony dimensions, whereas the width of the hand is not to be so classed. If the width of the hand decreased in direct

[3] Miles, W. R., "Human Body-Weight: I. Correlations between Body Widths and Other Physical Measurements on Young Men," *Science*, 68 (1928): 382–386.

proportion to decrease in total weight, the value of our results would be greatly reduced. There doubtless is at least some slight decrease in the hand when there is a great decrease in weight. Because the data used in this study were secured while studying the relation between the size and the shape of the hand and dexterity, we measured width across the middle of the palm. From data we are getting now it appears that the width as measured across the knuckles may be used. If such measurements are made with the fingers flexed backwards, the muscles of the hand are tensed and more accurate measurements are secured. I intend, however, to determine definitely the answer to this whole problem by studying the hands of a large number of individuals emaciated by disease. I recently measured the hand of one young man who claims he has lost thirty pounds since last September, and found that his hand called for a weight within five pounds of what he says he weighed in September. Of course one case proves nothing, but all of a few similar cases point in the same direction. The width used in these cases was the width measured across the knuckles.

The correlation between "hand area" and weight, with the two standard deviations, gives the regression equation $x = 3.97y + 40.58$ where x equals weight in pounds and y equals "hand area" in square inches. This equation may be simplified to $x = 4y + 40$ without introducing any serious error. This equation is for predicting weight with all clothing except the coat. Most life-insurance data concerning weight are so obtained. To deal with "stripped" weight, the weight of the clothing (about seven pounds) should be subtracted. Using the equation $x = 4y + 40$, with slight corrections for age, I have computed the weight called for by the hand, and then compared this inferred weight with the actual weight. The average error of estimate thus obtained was 9.12 pounds. The average error of weights inferred from height and age, using the medico-actuarial tables, was 12.73 pounds. The average error of weight estimated from the hand is only 71.6 per cent of the average error of weight estimated from height. The age corrections made in the weights inferred from hand measurements were based on the age differences shown in

the medico-actuarial tables, because our data are as yet too few to show reliable age norms.

TABLE II

Coefficients of Correlation

1. LH Length of hand
2. WH Width of hand
3. LF Length of middle finger
4. LP Length of palm
5. Wt Weight
6. Ht Height
7. AH LH × WH ("area of the hand")
8. AP LP × WH ("area of the palm")

	1	2	3	4	5	6
	LH	WH	LF	LP	Wt	Ht
1. LH	—	.49	.70	.91	.56	.69
2. WH	.49	—	.30	.41	.68	.35
3. LF	.70	.30	—	.17	.37	.58
4. LP	.91	.41	.17	—	.48	.48
5. Wt	.56	.68	.37	.48	—	.45
6. Ht	.69	.35	.58	.48	.45	—
7. AH	—	—	—	—	.74	.55
8. AP	—	—	—	—	.70	.45

TABLE III

Correlations between Weight and Other Measures

(Miles, W. R., *op. cit.*, *Science*, October 19, 1928)

	Odd-numbered group	Even-numbered group	Average
Weight and height.....	.55	.53	.54
Weight and sitting height....	.52	.50	.51
Weight and shoulder diameter	.44	.47	.46
Weight and hip diameter....	.58	.51	.55
Number of men.....	280	272	552

The partial regression equation for estimating "correct weight," which takes both hand area and height into account,

is $x = .45y + 3.81z + 15$, where x is weight in pounds, y is height in inches, and z is hand area in square inches. This equation is theoretically and actually slightly more precise than the equation based on hand area alone. I wish to add that these regression equations are likely to be at least slightly modified when we have data from a larger number of individuals.

One problem which arises in dealing with older men is to be found in the difference between actual weight and ideal weight. The medico-actuarial tables are based on the actual average weights of men of each height and age, and the weights given for middle-aged men are somewhat higher than the ideal weights. I am inclined to believe that, if all men ate and exercised as they should, smaller age corrections would be required in inferring proper weight from the hand than is required in inferring proper weight from height. This is because the glandular and other influences that determine width, continue to act longer than those which determine length measurements. The growth curves in general show that increases in breadth tend to follow increases in length.

Table II shows fairly high correlations between weight and the length measurements of the hand, but a low correlation between height and the width of the hand. It will be noticed that of the single measurements, the width of the hand shows the lowest correlation with height and the greatest correlation with weight.

There are interesting differences in the shape of the hand, and I suspect that some of the characteristic hand shapes may prove to be significant in relation to other things, such as racial or subracial differences and predisposition to certain diseases, and possibly to temperament.

University of Michigan

REPORTS OF ARCHAEOLOGICAL FIELD WORK IN THE SUMMER OF 1928 IN MONTMORENCY, NEWAYGO AND LAKE COUNTIES, MICHIGAN

WILBERT B. HINSDALE

SUPPLEMENT TO WORK DONE IN 1927 UPON INDIAN MOUNDS, WEST TWIN LAKE, MONTMORENCY COUNTY, MICHIGAN

IN AUGUST, 1928, accompanied by Mr. Calvin Goodrich of staff of the University of Michigan Museums, I returned to the group of mounds described in a previous volume of these *Papers* (10 : 91–101). This is a supplementary report. As indicated in the original paper, seven of the group of eight mounds were explored in 1927; the easternmost, No. 1, was left undisturbed. Mounds 1 and 2 are the largest and, as stated, are contiguous. Descriptions of the exteriors, with illustrations and a map showing geographical locations, are given in the former account.

Digging was commenced upon the east side with two laborers. All earth was removed to the center. At a distance of twelve feet from the edge, evidence of fire such as ashes, charcoal, "fire-stones" and discolored earth was apparent, but there were no continuous black seams extending throughout the entire structure as in Mound 3, which stood within eighty feet. Near the center of the mound, at the natural ground level, the earth had the appearance of having been disturbed. A trench four by eight feet was sunk at this place into the subsoil (Pl. XXXII, Fig. 2). Three feet below the base the skeleton of an adult came to light (Pl. XXXII, Fig. 1). The body evidently had been entombed in a bent attitude. The skull and knees were touching. To the bottom of this grave it was four feet from the natural earth level and nine feet to the top of the mound. Above, eight inches from the

right shoulder, a pot (Pl. XXXIII, Fig. 1) which had been fractured by ground pressure was removed. The pot, after reconstruction, has the dimensions of four inches across the rim, six and a half inches through the bulge and seven inches in height. It appears to be of the type usually classified as "Algonquin." It contained fifteen beautifully chipped chert arrows and one small chert knife, an arrow point of hollowed-out antler tip which I sometimes designate as a "thimblepoint," (Pl. XXXIII, Fig. 2), two two-holed slate gorgets; and two peculiar implements made by the insertion of beavers' teeth through perforations in a prong of deer's horn. There was close by, also, a black clay pipe with massive stem. The height of the pipe barrel from the base is two inches; the length of stem projecting beyond barrel, two and one-half inches. Four bone harpoons with barbs upon one side and a hole through the base of each and a few slate objects that had been greatly damaged by fire were found near the right shoulder of the skeleton. Most of these objects are illustrated in Plate XXXII, Figure 3.

On the ground level, very near the center of the mound, in a pile without order or arrangement, were the skulls and long bones of two individuals. This bundle of bones was five feet from the top of the mound and would probably be called intrusive. The first interment, which contained votive objects, had been made with considerable care and arrangement; the second was an intrusion of bones that had been stripped, no doubt, and buried as a bundle without ceremony. There had been in the case of this mound, two, as there were in others of the group, three, kinds and times of burial. The deepest, and evidently the earlier buried, skeleton had marked evidences of a diseased right femur and corresponding acetabulum. Whoever he was when alive, he was a cripple with "hip joint disease."

MUSKEGON RIVER VALLEY, NEWAYGO COUNTY, MICHIGAN

On August 22, 1928, accompanied and assisted by Mr. T. J. Case, I visited extensive refuse heaps or middens on the west

bank of the Muskegon River, Section 23, SW. ¼ of SW. ¼ Brooks Township, Newaygo County. One heap, overgrown with saplings and briars, twenty feet in diameter, was carefully examined. At the highest point the flattened crest was about two feet above the natural ground surface. The upper fourteen inches contained innumerable bones of animals. Those of deer were the most numerous. Within a space of a square yard, the jaw bones of not fewer than twenty-five deer were collected (Pl. XXXIV, Fig. 1). The bones of beaver, otter, bear, turtle, wild turkey, wild goose, wolf, rabbit, fish, elk, wild cat and porcupine and clam shells were intimately interspersed with one another, ashes, charcoal and burnt humus and sand. The jaws of several of them are illustrated in Plate XXXIV, Figure 2.

There were several smaller flat mounds in the immediate vicinity. Nearly every one of them had been disturbed by relic hunters. They all appeared to have been the cooking and eating places of the people who frequented and camped upon the bank of the river. This stretch of the river is very beautiful. The river bank is steep to the height of thirty feet. The refuse heaps are but a few feet from the crest of the bank.

No great age can be ascribed to the last occupancy of the site because there were mixed with the débris pieces of English clay pipes, silver buckles, wrought spikes made by blacksmiths, and nails, hunters' knives and pieces of similar articles that were used by trappers and hunters a hundred years ago. There was found an occasional fragment of typical Indian pottery and a pipe or two of the same workmanship.

The inference is that this was the camping site where, to judge from the masses of bones, charcoal and ashes, innumerable feasts were cooked and eaten. Of the large numbers of long bones and skulls that were in evidence not a single one was entire. All had been broken or split open, presumably to obtain the marrow.

I would say that these large piles were a good many years in accumulating. It was probably an Indian rendezvous for a considerable period, finally frequented by hunters and trappers of Indian, mixed and white blood. The clear river abounded in fish and clams, and must have been a favorite habitat of beaver,

otter, wild fowl and other water-frequenting animals. The forest was the haunt of many kinds of game. The flesh pots were well supplied from both land and water. The entire situation, as the bone piles attest, was an ideal resort of the men who, years ago, before the lumbermen and the farmers came in, ranged the woods and paddled the streams.

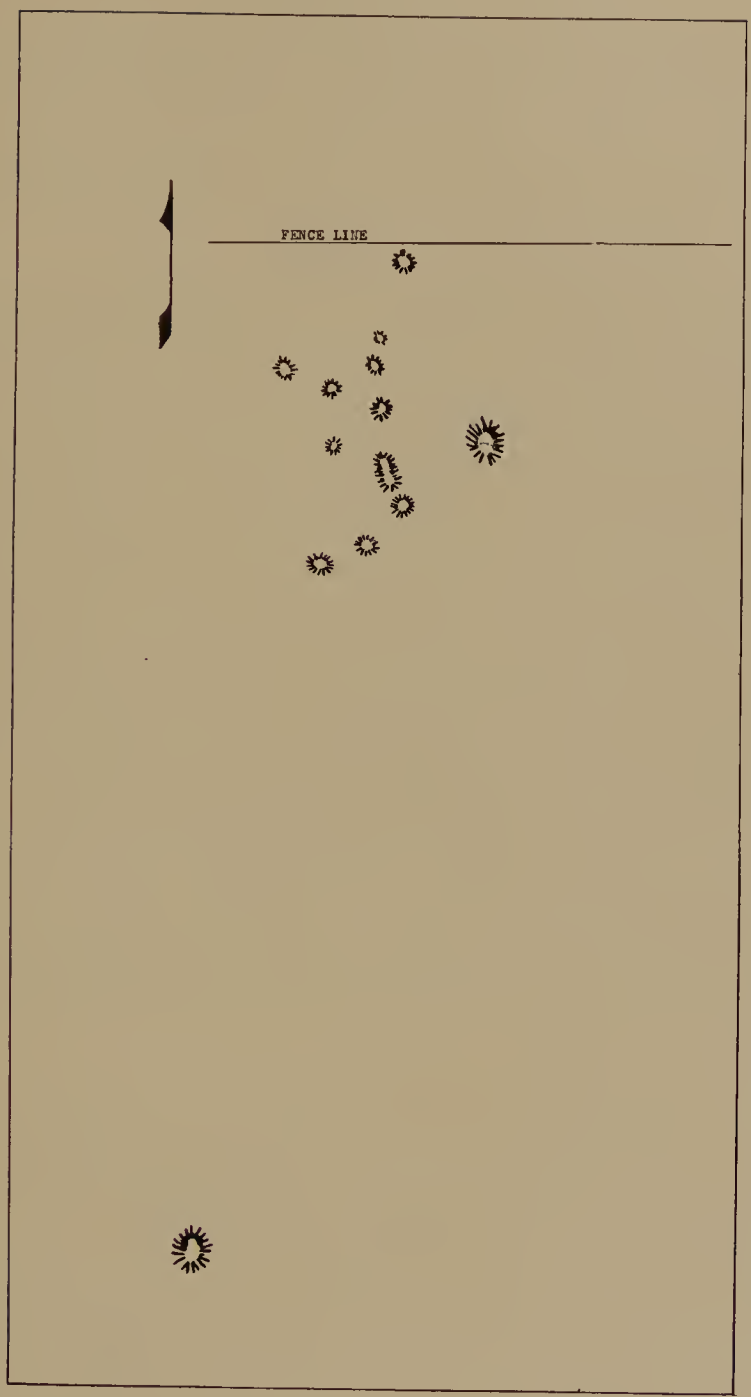
GROUP OF FOURTEEN MOUNDS, BROOKS TOWNSHIP, NEWAYGO COUNTY, MICHIGAN

About a mile northwest from the camp sites, Brooks Township, Section 23, SW. $\frac{1}{4}$ of SW. $\frac{1}{4}$ upon the bank of the Muskegon River, is a group of fourteen mounds, Brooks Township, Section 21, NW. $\frac{1}{4}$ of NE. $\frac{1}{4}$ (Map 2). The group is about a mile from the river upon a tract covered with thicket and second-growth timber with here and there large and old trees. The situation is about a mile south of the main thoroughfare from Newaygo to Croton Dam and perhaps fifty rods west from a by-road running south that is not often traveled.

All the mounds of the group are within five hundred feet of a central point. The area of an acre will include thirteen of them. Two acres and a half will include them all. From the standpoint of size, proximity to one another and condition at the time of my visit, I considered this as fine a cluster of mounds as I know of within the state, although most of them had been more or less mutilated, but the despoliation was not as complete as that of the large groups in the southwestern part of the state.

There operated throughout the state several years ago a cult of fakers who made "relics," planted them in probably a hundred places and then dug them up again and placed them "upon the market." They generally selected some real mound so that, when they were "discovered," there would be the confirming evidence of genuineness by finding skeletons; if in digging out the skeletons real Indian artifacts were found, the profits were enhanced as occasionally archaeologists were fooled by the admixture of the real with the false and declared them all genuine.

The original center of this kind of work, which went on for



Map 2. Showing the relation of mounds in Section 21, Brooks Township, Newaygo County, Michigan. Two contiguous mounds are represented by the long narrow figure. Surveyed by Mr. T. J. Case, October 5, 1928. Scale 1 inch to 50 feet

years, was Newaygo County. Hundreds of collectors and some museums were deceived and cheated by this gang, who later had headquarters in Detroit. Since these planters had but to dig into a mound or cemetery only a very few feet or even inches to make the insertion of their frauds, they did not have to destroy a mound entirely to get them at a later time, often in the presence of enthusiastic spectators as witnesses.

Fortunately, since the sites had been vandalized, the perpetrators did no worse. All the places in this group where they dug well deserve excavating, as was demonstrated by our examination.

Mound 1, the largest of the group, covers at the base an area of over thirty feet in diameter and is six or more feet high. We deemed it advisable to excavate one that had been dug into to the depth of four feet in two different places. What the first diggers found, we cannot say. We found, however, in reshoveling the earth which they had removed, three fourths of a beautiful platform pipe of steatite (Pl. XXXV, Fig. 1). This pipe had evidently been broken by the carelessness of the diggers. The base was originally five inches long, height of bowl, two inches, transverse diameter of rim of bowl, one and three quarter inches. This mound contained a deformed skull also (Pl. XXXV, Fig. 2).

A skeleton of a male, buried in crouching attitude, with head far down upon chest, was cut away from the earth, three feet from the center of the mound to the southeast (see Text Fig. 1). It was three feet above the base level and four feet from the top. A pot, oblong at the rim, five inches by four across, with a depth of six inches, was near the left shoulder of the skeleton (Pl. XXXVI, Fig. 2). A number of long shell beads made of the cores of salt water shells were under the left jaw. The largest bead was two inches long. About the face and over the temporal part of the head of the skeleton, there appeared to have been smeared a considerable quantity of dark red pigment. Small lumps of the pigment were found close by. The pot contained the carapace of a small turtle and red earth like the pigment described. There is no red soil in the neighborhood of the location. Since we were testing out the situation only to determine whether further and

thorough examination would be advisable, the digging in Mound 1 was discontinued. We then made an exploratory examination of Mound 6, which was much smaller and had been scarified only to a shallow depth. It was slightly over two feet high and twenty feet in diameter. Nothing was found above the surface level to attract attention. At a depth of three feet in the ground below

Fig. 1. Skeleton exposed in Mound 1

the base line, in an oblong pit there had been buried in a bunch three skulls and the leg bones of five individuals. No bones of the extremities and no ribs were there, but one vertebrate section (atlas) was found, evidence, again, that bodies were frequently dismembered and parts lost or disregarded before burial. Very nearly on top of this bundle of bones was an earthen pot of decidedly reddish material (Pl. XXXVI, Figs. 1 [left]–3), very different in color, texture and design from the pot in Mound 6. This pot was decorated with curvilinear lines forming elliptoid designs

with short cross-hatchings. It was full of red gritty sand. The most striking specimen found in Mound 6 was a small pot the capacity of which is three fluid ounces (Pl. XXXVI, Fig. 1 [right]). It is embellished about a slightly constricted neck with three incised bands. The rim is closely dotted upon the under side with small pittings. A cross-section of the body is almost square with curved corners. The base is drawn to an "egg point." The surface is polished. The texture is much finer in quality than the two other pots described. This makes three types of pottery represented by three different specimens. These mounds showed no particular stratification, although there were streaks of ashes, charcoal and firestones interspersed in the earth.

Since owing to lack of time we could go no farther into this mound, we proved it is well worth while to work out old sites, unless the previous operators have been thorough in their destructiveness. Moreover, in order to be thorough, it is necessary to make scrutinizing examination of the bases of mounds because interments are very frequently as deep in the ground as the mound is high.

After restoring the earth removed, we left this site with the full determination to return under more favorable circumstances, and to be more systematic than we were in the two test excavations we had made. It happened almost immediately after our departure that some persons, knowing of our work, have done extensive damage to some of the other mounds and have probably destroyed the prospect of careful scientific investigations.

This preliminary report is based on work done August 22–25, 1928.

REMARKS

The attitude of the body in Mound 1, the steatite pipe and the decorations upon the pot of Mound 6 lead the writer to believe that the builders of these mounds had been influenced by what is known as the Hopewell culture of Ohio. He is confirmed in this contention that the Hopewell culture reached as far north as the Muskegon River by the fact that other pipes characteristic of Hopewell had been found farther up the river north of Everett in Osceola County. While at Everett we heard the report that, in

FIG. 1. Workmen in the mound in which skeleton was found; Mr. Goodrich in the background

FIG. 2. Exposing skull

FIG. 3. Objects found in the lower burial

Excavation of Mound 8 at West Twin Lake, Montmorency County, and objects found in it

PLATE XXXIII

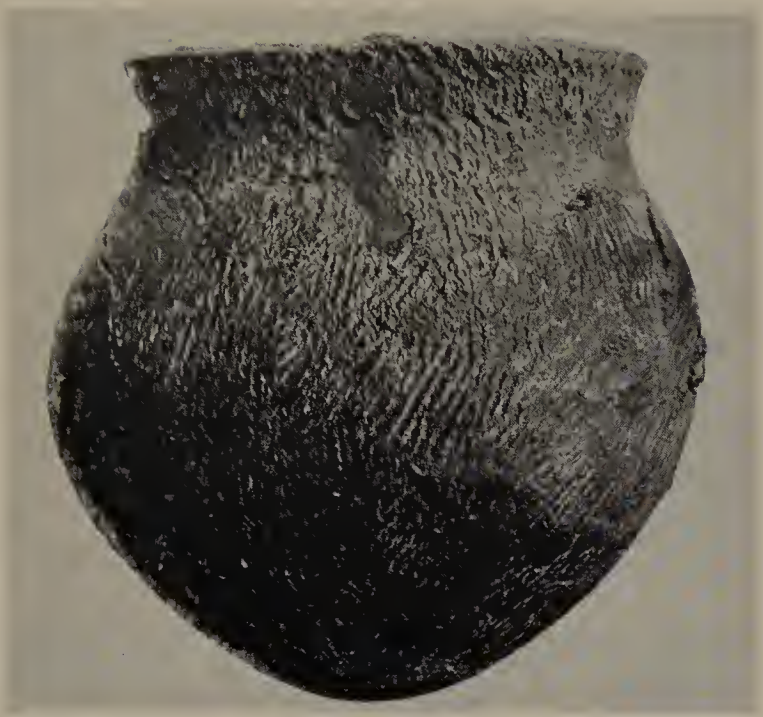


FIG. 1. Pot, restored, found with lower burial of Mound 8 at West Twin Lake

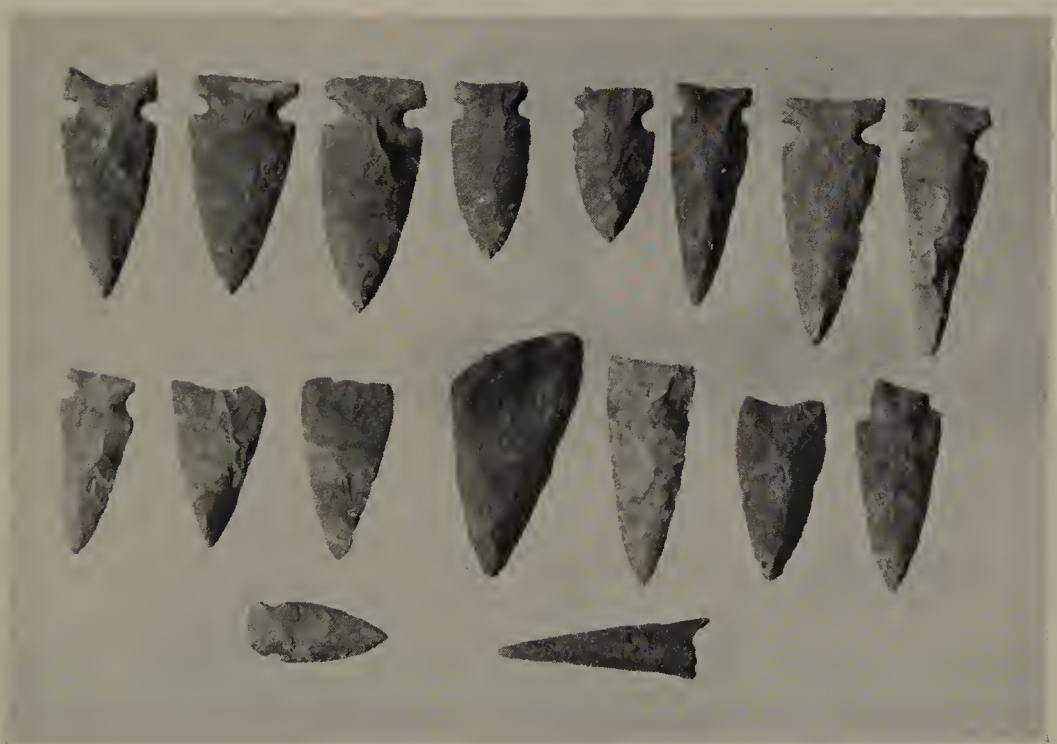


FIG. 2. Chert implements found within the pot shown in Figure 1

PLATE XXXIV

FIG. 1. Jaw bones of deer

FIG. 2. Jaws and a tooth (at upper right hand corner) of wild animals

Bones found in a mound in Brooks Township, Newaygo County

FIG. 1. Steatite monitor pipe, restored, found in Mound 1

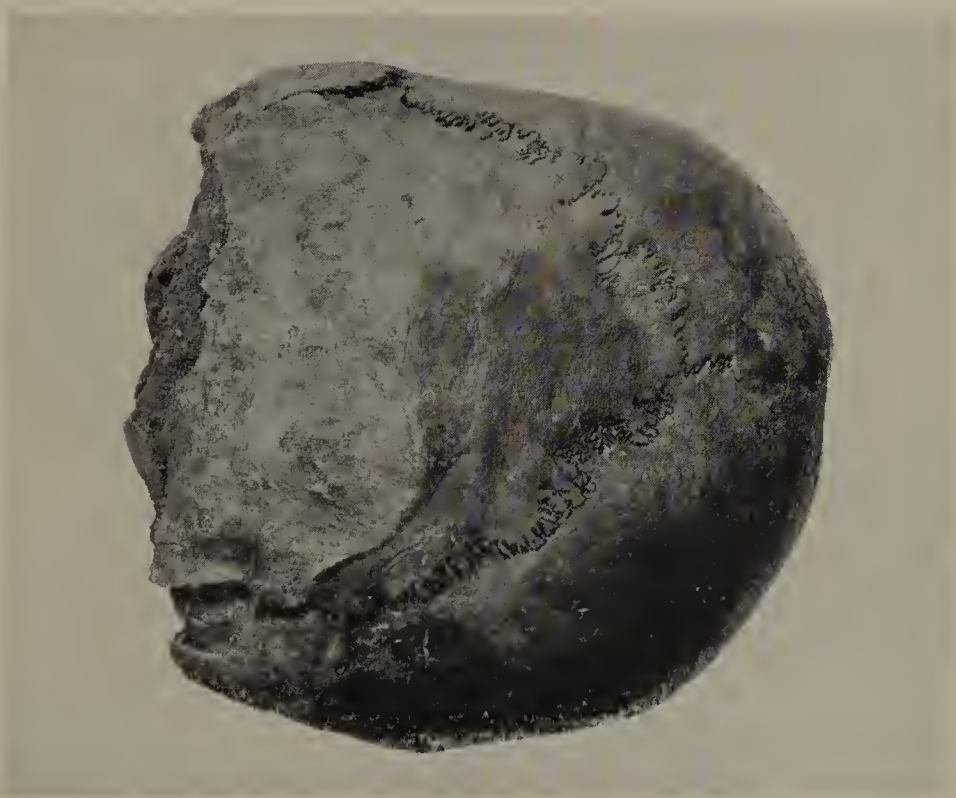


FIG. 2. Deformed skull from Mound 1

Objects found in a mound in Brooks Township, Newaygo County

FIG. 1. Pottery from Mound 6

FIG. 2. Pot, piece of pipe, gorgets and other objects from Mound 1

FIG. 3. Cast of the design upon the pot to left in Figure 1

Objects found in mounds in Brooks Township, Newaygo County

very early times, there had been an old "fort" somewhere north of there upon the Muskegon River. The actual location of this earthwork cannot be determined at this late date, as it has been entirely destroyed, but the pioneers have left verbal accounts of its existence.

To refer to mound-building again, there are several reasons why burials could not have taken place at all times of the year. For several months the ground was frozen to the depth of two or three feet and was frequently covered with as much as two feet of snow. No digging tools of the Indians could have made more than very shallow graves at these times, neither could they have piled up mounds. The construction of mounds and other earthworks was a summer enterprise.

They periodically took trips, sometimes very long ones, away from the home base to return again when the food quest or homing instinct was the strongest urge. War parties also called the men and sometimes their camp followers to distant parts. In case of a death upon such trips the bodies or at least the large bony parts of them would, if possible, be transported to a chosen place of interment. Such cases may account for the bunches of bones found in the same mound with those more carefully deposited under favorable circumstances. Again there was among numerous tribes the custom of communal burial, when many families brought their dead for interment in a common burial place and bunch burial was made by the community.

A MOUND IN SAUBLE TOWNSHIP, LAKE COUNTY, MICHIGAN

A mound twenty feet across and four feet high, in Sauble Township, N. $\frac{1}{2}$ of Section 20, upon the west side of a small lake, was examined on August 30, 1928. After careful removal of all the earth three quarters across the base from the east side, parts of skeletons of a woman and a child just "cutting" its second incisor teeth were found together at the ground level. No accompanying objects whatever were found. Deeper digging exposed no subinterments.

University of Michigan

FOLK TALES WHICH ACCOUNT FOR THE BLACKNESS OF THE RAVEN AND THE CROW

EUGENE S. McCARTNEY

FOLKLORE, though it knows nothing of the theory of the origin of life from a single cell, does postulate a time when animals did not have so many distinguishing physical and mental characteristics. The Ojibbeways claimed that they had a story accounting for the ways and the appearance of every creature.[1] Almost an entire book of three hundred and sixty-eight pages is devoted to such tales among the Rumanians.[2] According to Greek legend, it was Epimetheus who distributed to all creatures, which had been freshly made of clay, the characters with which they are now endowed.[3] The Greeks took great delight, however, in fashioning more specific tales about the traits and the looks of various animals. Many of these stories are recorded by Ovid in his *Metamorphoses*.[4]

In this paper I wish to collect "just so" stories which explain how the crow and the raven became black. It is a remarkable thing that the popular imagination in many countries assumes that the ancestors of these birds were white as they perched upon

[1] Lang, Andrew, *Myth, Ritual and Religion* (Longmans, Green and Co., London, 1913), 1 : 141. In 2 : 225 it is stated that in Namaqua myth the curse of Heitsi Eibib is used to account for the peculiarities of certain animals. See also 1 : 172.

[2] Gaster, M., *Rumanian Bird and Beast Stories* (Publications of the Folk-Lore Society, Vol. 75, 1915).

[3] Plato, *Protagoras* 320D–321.

[4] I have collected them, together with many parallels, in a paper called "How and Why: 'Just So' Mythology in Ovid's Metamorphoses," *The Classical Journal*, 15 : 260–278. I have gathered together many similar stories from other classical sources, but have not yet published them.

the lower limbs of the family tree. Like the birds, the stories are almost cosmopolitan.

My own collection of material for this paper was rounded out by many references which I found in a work edited by Oskar Dähnhardt, *Natursagen: Eine Sammlung Naturdeutender Sagen, Märchen, Fabeln und Legenden.*[5] I am indebted to this work more than the footnotes indicate although I had previously collected some of its references independently.

THE CLASSICAL ACCOUNT

In classical literature the raven is very frequently represented as having been white originally. The prince of Roman story-tellers, Ovid, says that it was as immaculately white as the dove,[6] but he leaves it to the reader to infer that a white dove is meant. All went well in the raven family until Apollo placed a member of it as guard over Coronis to see that no one violated her. When the raven reported to Apollo the faithlessness of Coronis, like many a human messenger, it received no thanks for being the bearer of unwelcome news. In anger Apollo changed its feathers from white to black.[7] This tale is repeated by Gower in *Confessio Amantis*, Book 3, and is greatly elaborated by Chaucer in the Manciple's story.

FLOOD STORIES

Accounts of floods are told the world around. The blackness of the crow is associated with a number of them, some of which are influenced by the Biblical story. Rumanian legend recounts how, as the waters of the deluge were subsiding, Noah sent out a crow to investigate, but it spent three days and nights glutting itself upon the carcass of a horse. On its return Noah cursed it:

[5] Four volumes, B. G. Teubner, Leipzig und Berlin, 1907–12.

[6] Cf. Shakespeare, *Pericles* IV (Gower): 32: "With the dove of Paphos might the crow Vie feathers white." Aesop (p. 103, No. 206, in the Teubner edition) tells how a raven, thinking that the snow-white swan became white through washing, tried to change its color in the same way.

[7] Ovid, *Metamorphoses* 2.531–632. See also Hesiod, Fragment 89 (Loeb Classical Library); Apollodorus, *Bibliotheca* 3.10.3; Antoninus Liberalis 20; Dionysius, *De Avibus* 1.9; Hyginus, *Fabulae* 20, *Astronomicon* 2.40; Lactantius Placidus, *Narrationes Fabularum* 2.7.

"'Thy feathers shall be like my heart!' And since Noah's heart was black [from anger], the raven's feathers changed their color forthwith and became black." [8]

Wallachian [9] and French [10] stories differ from the Rumanian chiefly in not specifying the kind of corpse upon which the crow feasted. According to a Moslem version a raven from Paradise had several colors for various parts of its body, with only the head white, since, unlike ravens in general, it had not suffered from Noah's curse and become entirely black.[11] Syrian legend[12] adds a picturesque detail in saying that a trace of the former whiteness of the raven's feathers is seen in a white feather which the young have on coming into the world.[13]

A perversion of the story that associates the blackness of the raven with Noah and the flood was found among the Algonquins. ". . . they say that Glooskap, when he was in the ark, that is as Noah, sent out a white dove, which returned to him colored black, and became a raven." [14]

Among a tribe of Algonquin stock in Canada, the Crees, there was another story that reflects Christian influence. In anticipation of a flood a man built a big canoe and during the flood sent

[8] *Revue des traditions populaires*, 9 : 620 Gaster, M., *op. cit.*, pp. 278–279.

[9] *Ethnographia*, 10 : 331 (quoted by Dähnhardt 1 : 283).

[10] Sébillot, Paul, *Le Folk-Lore de France* (E. Guilmoto, Paris, 1906), 3 : 158. See also *Revue des traditions populaires*, 10 : 481.

[11] Weil, G., *Biblische Legenden der Muselmänner* (Frankfurt a. M., 1845), p. 51: ". . . er hatte aber einen Kopf so weiss wie Schnee, einen Rücken wie Smaragd, Füsse wie Purpur, einen Schnabel wie der klarste Sonnenhimmel, und Augen wie zwei Edelsteine: nur der Leib war schwarz, denn diesen Vogel konnte Noa's Fluch, durch welchen die Raben ganz schwarz geworden, nicht treffen."

[12] Ephram Syrus, as quoted by Lagarde, Paul [Anton], *Materialen zur Kritik und Geschichte des Pentateuchs* (B. G. Teubner, Leipzig, 1867), 2 : 79.4. See also Grünbaum, Max, *Neue Beiträge zur semitischen Sagenkunde* (E. J. Brill, Leiden, 1893), p. 83.

[13] Compare Bochart, S., *Hierozoicon*, 2 : 205 (Chapter 11): "Rabbi Eliezer in *Capitulis* fere in fine cap. 21. Cum corvi genuerunt pullos suos, videntes esse albos, aufugiunt ab illis, existimantes illos esse pullos serpentis: tum Deus Sanctus Benedictus illi largitur alimentum absque penuria." See also Grünbaum, pp. 83–85 of work cited in preceding note.

[14] Leland, C. G., *The Algonquin Legends of New England* (Sampson Low, Marston, Searle & Rivington, London, 1884), 26–27.

forth first a raven and then a wood-pigeon. The raven did not return, and as a punishment was changed from white to black.[15]

The following Algonquin story is worth quoting in full:

Before the flood caused by Manabozho's contest with his great enemy the serpent, the crow was a bird of song, and his plumage was white as the snow, and fruits and berries were his food. While the raft bearing Manabozho, and the men and animals by which the earth was to be replenished, was floating on the waters, the birds flew abroad during the day, to find food. They returned at night, and Manabozho noticed the crow, and he said, "Thou hast gorged thyself on human flesh." But the crow denied the accusation. The next night the crow again returned to the raft, and its flight was slow and heavy, for it was full. Then said Manabozho, "Deniest thou that thou hast feasted on human flesh?" and the crow dared not deny it. "From this day thou are accursed," said Manabozho; "thy feathers shall be as black as the night, thy flesh too shall be of the same color, thy voice shall be harsh and grating, and thy companions shall be the loathsome buzzard and the vulture." And so it was that the crow became degraded and his feathers black.[16]

An interesting story was told by the Jicarillas, whose ancestors, when the earth was covered with water, first sent out a polecat, then a badger, then a beaver. "They waited again, and then sent out the Crow to see if it was yet time. The Crow found the earth dry, and many dead frogs, fish, and reptiles lying on the ground. He began picking out their eyes, and did not return until Tornado was sent after him. The people were angry when they found he had been eating carrion, and they changed his color to black, which before was gray." [17]

The following story of "Lŭi and the Flood," collected among the Upper Thompson Indians, shows some Biblical influence:

There was a chief called Lŭi who lived in the country somewhere. He alone knew how to make canoes; and therefore some people think he was Kwonekwa, and lived at Lytton. The inhabitants of the country were bad, and therefore God sent a flood to drown them. Lŭi made a large canoe, and all the good people embarked with him in it. There were very many. They

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[15] Faraud, Mgr., in *Annales de la propagation de la foi* (1864), p. 36. I have taken this story at second hand from J. G. Frazer, *Folk-Lore in the Old Testament* (Macmillan and Co., London, 1919), 1 : 297.

[16] *The American Review: A Whig Journal, Devoted to Politics and Literature*, 8 (1848) : 397–398.

[17] Mooney, James, "The Jicarilla Genesis," *The American Anthropologist*, 11 (1898): 197–209. Quotation on pp. 199–200.

drifted about for many days, and could see no land. They were tired and hungry, and anxious to see land. Lũi sent out Swallow and his brother Martin to see if they could find and bring back any land. They returned without finding any. Then he sent out Raven and Crow, and they did not come back. They staid away, feeding on the putrid corpses of the drowned people. For this reason Lũi transformed them into birds of a black color; before that, they were white-skinned people, like Lũi himself. One night the canoe grounded on the top of a mountain. The people went ashore; and gradually, as the flood receded and the earth dried up, they left the mountains and spread throughout the valleys of the country, settling here and there. Lũi himself, and his family, are supposed to have settled at Lytton. From these survivors of the flood all the people sprang.[18]

There are still other ways by which the blackness of the raven is associated with the flood. In order to dry the earth more quickly the sun shone hot, so that the bird's feathers became black.[19] Once upon a time, shortly after the deluge, a small Philippine bird, the culeto, and the crow agreed to race each other.

. . . During their flight the two birds became separated from each other by a dense cloud. The culeto flew at full speed so high upward, that he knocked his head very hard against the door of the sky, — so hard, in fact, that a large piece of skin was scraped from his scalp. The crow, having lost his way, flew so near the sun, that his feathers were burned black.

It is on account of this bet between the culeto and the crow that all the descendants of the former have been bald-headed, while all the descendants of the crow have black feathers to-day.[20–21]

THE EATING OF CARRION

We have seen that in some of the flood stories the crow is represented as eating carrion, in punishment for which it was turned black. There are still other stories in which it is pictured as eating dead bodies. A French legend says that the raven appeared before God with a piece of human flesh in its beak, and that

[18] Teit, James, "European Tales from the Upper Thompson Indians," *The Journal of American Folk-Lore*, 29 : 301–329. Quotation on pp. 328–329.

[19] Marian, S. F., *Ornitologia porporană română* (Cermăutĭ, 1883). Reference in Dähnhardt, *op. cit.*, 1 : 283.

[20] Fansler, D. S., "Filipino Popular Tales," *Memoirs of the American Folk-Lore Society*, 12 (1921): 407–408.

[21] Classical authors attribute the color of the Indians and the Ethiopians to their having been tanned or burned by the sun. See Hyginus, *Fabulae* 154; Herod. 3.104; Lucretius 6.721–722; Pliny, *Nat. Hist.* 2.189. See also Strabo 12.3.9. When Phaethon drove the chariot of the sun too low, it scorched the Ethiopians black, according to Ovid, *Metamorphoses* 2.235–236.

for this reason it was condemned to be the blackest of birds.[22] Among the Ehsts (Esthonians) the blackness is the requital for the eating of dead animals, but no further details are given.[23] A Pampangan story recounts that, when the universe was ruled over by the god Sinukuan, a terrible pestilence visited the earth and killed animals. One day the god found his two crows, which were favorites with him, feasting on the carcasses, whereupon he cursed them and turned them black. Hence crows are such as we now see them.[24] Visayan legend tells us that crows of today are black because the god Bathala, angered at their ancestors for having eaten corpses, threw at them an inkstand that was filled with ink.[25]

ASSOCIATIONS WITH CHRIST

Several birds acquired characteristics through some association with Jesus.[26] The breast of the robin is spotted with Jesus' blood[27] and the bill of the crossbill is twisted from trying to pull out the nails of the cross.[28] The crow and the raven, however, were not kindly disposed toward Christ. In Tirolese story they were haughty birds, beautiful and proud of their white feathers. When Christ came to a brook and wished to drink, they muddied it, whereupon Christ, seeing their pride in their white feathers, condemned them to have black feathers to the end of the world.[29] A Hungarian tale says that the raven was once white and lived on clean food, but that, when it saw Jesus escaping from his persecutors, it exclaimed "Too bad!" whereupon Jesus called upon it a curse that it should be black and live upon carrion.[30]

[22] Sébillot, 3 : 158, as quoted in note 10.

[23] Wiedemann, F. J., *Aus dem inneren und äusseren Leben der Ehsten* (Eggers & Co., St. Petersburg, 1876), p. 453.

[24] Fansler, D. S., *op. cit.*, pp. 420–421.

[25] *Ibid.*, 421–422. In this story too there is a flood, but it affects only the dominions of Bathala.

[26] Sébillot, Paul [Anton], *op. cit.*, pp. 73–74, 157–158, 160–161.

[27] See Whittier's poem *The Robin*, and Sébillot, *op. cit.*, p. 157.

[28] My authority for this is merely a clipping.

[29] Zingerle, Ignaz V., *Sitten, Bräuche und Meinungen des Tiroler Volkes* [2] (Innsbruck, 1871), p. 86.

[30] Ethnografia, 10 : 331(as referred to byDähnhardt, 1 : 286).

SMOKE AND FIRE

Arapaho tradition tells how a white crow that kept all the buffaloes was caught by a ruse and tied to the top of a tent where the smoke came out. Gradually it turned black from the smoke.[31] In another account the smoke that blackened the raven came from a brand it was carrying.[32] In a story called "The Seeking of the Maidens of Corn by the Raven," Zuñi myth says of the raven:

> Not ill to look upon was he, for upon his shoulders were bands of cotton, white, and his back was blue and gleaming as the tresses of a maiden dancer in sunlight. When the warriors had spoken to the fathers, the master priest of them, rising, came forward and greeted the Raven, bidding him sit and smoke.
>
> "Ha! there is corn in this, else why the stalk thereof?" said the Raven as, taking the cane cigarette of the far-spaces, he noticed the joint thereof. Therefore, forthwith, as he had seen the master do, so did he, only more greedily. He sucked in such a throatful of the smoke, fire and all, that it well nigh strangled him, and he coughed and grew giddy and sick to such a pass that the smoke, all hot and stinging, went through every part of him, and filled all his feathers, making even his brown eyes bluer and blacker in rings! It is not to be wondered at, this blueness of flesh, blackness of dress and tearfulness, yea and skinniness, of eye which we see in his kindred today.[33]

India is represented by a story told by the Mundas of Bengal:

> Sing Bonga, the chief god, cast certain people out of heaven; they fell to earth, found iron ore, and began smelting it. The black smoke displeased Sing Bonga, who sent two king crows and an owl to bid people cease to pollute the atmosphere. But the iron smelters spoiled these birds' tails, and blackened the previously white crow, scorched its beak red, and flattened its head.[34]

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[31] Dorsey, G. A., and Kroeber, A. L., *Traditions of the Arapaho* (Field Columbian Museum Publication 81), pp. 275–277. In a story recorded by G. B. Grinnel, *Blackfoot Lodge Tales: The Story of a Prairie People*, p. 145, a crow is left hanging in the smoke about a ridge pole, but nothing is said about a change in color.

[32] Phillips, W. S., *Indian Fairy Tales: Folklore — Legends — Myths; Totem Tales as Told by the Indians; Gathered in the Pacific Northwest* (Star Publishing Co., Chicago, 1902), pp. 60–67.

[33] Cushing, F. H., *Zuñi Creation Myths*, Annual Report of the Bureau of American Ethnology, 13 : 438–439.

[34] Judson, K. B., *Myths and Legends of British America* (A. C. McClurg & Co., 1917), p. 49.

Fire played a part in the Australian version also:

> The crane was an expert fisherman, and one day when he had caught a large number of fish, the crow (who was white) came along and asked the crane to give him some; but the latter answered, "Wait a while until they are cooked." The crow, however, being hungry, kept begging to be allowed to take the fish, only to hear the crane always reply, "Wait." So at last, when his back was turned, the crow started to steal the fish, but the crane saw him, and seizing one of them, he threw it at the crow and hit him across the eyes. Blinded by the blow, the crow fell into the burnt grass, rolling about in pain; and when he got up, his eyes were white, but his body became as black as crows have been ever since.[35]

In the legend of the Bella Coola Indian tribes, "Crow was sitting on a tree when Mink [an Indian Phaethon] made the Earth World to burn. The smoke was so black that it made Crow black all over. Before that Crow had been white; so the Indians say."[36]

SOOT, INK, PAINT, TAR

In the stories of the Eskimos there appears what one might describe as an ecological factor, since the smoky, sooty lamps of their ill-ventilated homes play a part.

According to one tale, the crow and the loon agreed to make a suit of clothes for each other. The crow made one for the loon, but would not sit still for its own, whereupon the loon lost patience and threw the contents of a lamp over it. Hence the crow is entirely black.[37] Cumberland Sound Eskimos tell how the owl tried to fit a suit upon the crow. As the crow hopped about restlessly, the owl treated it in the same fashion as did the loon, and the crow has been black ever since.[38] According to the Smith Sound Eskimos, the hawk was busy marking the raven with spots when a man approached them from behind. The hawk was so startled that it spilled soot over the raven, which became entirely

[35] Lang, A., *Myth, Ritual and Religion* (1913), 1 : 149.

[36] Dixon, R. B., *Mythology of All Races: Oceanic* (Marshall Jones Co., Boston, 1916), p. 292.

[37] Boas, Franz, *The Eskimo of Baffin Land and Hudson Bay*, Bulletin of the American Museum of Natural History, 15 : 320.

[38] *Journal of American Folklore*, 7 : 49; Boas, Franz, "The Central Eskimo," Sixth Annual Report of the Bureau of Ameriean Ethnology, p. 641; Boas, p. 220 of work cited in preceding note.

black. The raven in turn bespattered the hawk and that is how it got its small spots.[39]

The Flemish are economical of words and use one story to account for the characteristics of three birds. The quail, which had a long tail, the magpie, which looked white, and the crow, which was not yet black, went in a gay mood on Ash-Wednesday to a tavern conducted by a greenfinch, where they drank so much that they could only babble. When they refused to pay, the greenfinch drove them out. The quail escaped through the door, but left its long tail in the hands of the innkeeper; the magpie flew through the window, but fell into a coal-scuttle and became black; the crow sought an exit through the chimney and was made black by the soot.[40]

A Malay story is recorded by W. W. Skeat:[41]

> The Argus-pheasant and the Crow in the days of King Solomon were bosom friends, and could never do enough to show their mutual friendship. One day, however, the argus-pheasant, who was then dressed somewhat dowdily, suggested that his friend the crow should show his skill with the brush by decorating his (the argus-pheasant's) feathers. To this the crow agreed, on condition, however, that the arrangement should be mutual. The argus-pheasant agreed to this, and the crow forthwith set to work, and so surpassed himself that the argus-pheasant became, as it is now, one of the most beautiful birds in the world. When the crow's task was done, however, the argus-pheasant refused to fulfil his own part of the bargain, excusing himself on the plea that the day of judgment was too near at hand. Hence a fierce quarrel ensued, at the end of which the argus-pheasant upset the ink-bottle over the crow, and thus rendered him coal-black. Hence the crow and the argus-pheasant are enemies to this day.

In a footnote Skeat says: "I believe that a similar story exists in Siam, the Siamese, however, making turpentine play the part of the ink in the Malay story."

Some of the Ehsts say that when God was excavating the courses of the rivers the crow refused to help lest it become dirty. By way of punishment it was dipped in a tar barrel and thus acquired its black raiment.[42]

[39] *Journal of American Folklore*, 12 : 174.

[40] De Mont, Pol, en de Cock, A., *Vlaamsche Vertelsels* (Deventer, 1898), p. 91 (as quoted by Dähnhardt, 3 : 369).

[41] Skeat, W. W., *Malay Magic* (Macmillan and Co., London, 1900), pp. 130–131.

[42] Wiedemann, F. J., p. 453, as cited in note 23.

An Indian story of the north Pacific Coast tells how Kumsnóol painted all mankind with gay colors, which caused the raven to ask to be painted in similar fashion. The painter became impatient, however, and besmeared the crow over and over with black paint. That is why the raven is black.[43]

According to a Mewan tale the raven used to go hunting to provide meat for a group of animals that lived with him in a cave. In order to make himself less conspicuous to his prey, with the aid of his companions he rubbed charcoal over his entire body and thus became black.[44]

MISCELLANEOUS STORIES

A Tlingit tradition tells how the raven was as white as the sea-gull until it tried to steal some resin from the woodpecker. It touched some red resin with its finger and then put its finger in its mouth, where it stuck fast. The woodpecker detected the theft, subjected the raven to smoke, and put it in a box. Then the woodpecker threw it into the sea, where a sea-gull took pity on it and assisted it to get rid of the resin. When it finally reached land, it had become entirely black.[45]

In Finnish story the raven and the ant had a contest of strength to see which could carry a piece of lead to the top of a fir tree. The ant pulled so hard that it stretched itself long and the raven expended so much energy that it became black.[46]

The Zouave version has no resemblance to any other tale except that the blackness of the crow is attributed to a curse. When God created the crow, it was white. One day he gave the crow two bags, one filled with silver for the Moslems, the other with lice for the Christians. Becoming weary with the weight of the heavy bag, the crow gave it to the first people it met, who happened to be Christians, and later the lice fell to the lot of the Moslems. That is why today the Christians have wealth and the

[43] Boas, Franz, *Indianische Sagen von der nord-pacifischen Küste Amerikas* (Berlin, 1895), p. 64 (as quoted by Dähnhardt, 3 : 63).

[44] Merriam, C. Hart, *The Dawn of the World: Myths and Weird Tales Told by the Mewan Indians of California* (A. H. Clark Co., Cleveland, 1910), p. 93.

[45] Boas, Franz, *op. cit.*, p. 314.

[46] Dähnhardt, *op. cit.*, 3 : 143.

Moslems lice. It is also the reason why the crow is black, for God said to it: "Since you have not carried out my orders, you shall be black." [47]

REASONS FOR POSTULATING WHITE AS THE ORIGINAL COLOR

Almost all these tales assume that white was the original color of the crow and the raven. There are numerous aetiological stories accounting for conspicuous markings of birds and animals in general, but examples of complete changes of color are rare. Why do almost all stories postulate a complete change of color in the crow and the raven? We have seen that these birds became black through some misadventure in a quarrel, or through punishment for some sin. Black is the color that symbolizes wickedness and the ways of wickedness. It is almost inevitable that any tale which assumes that these birds had fallen from grace and respectability would postulate white as the original color.

The ease with which symbolic color associations are made in connection with the crow is shown by the proverbs "Every crow thinks its little ones white," and "The crow is not more black than his feathers."

The Biblical verse upon which myth-makers have elaborated is as follows: "And he sent forth a raven, which went forth to and fro, until the waters were dried up from off the earth." [48] Philo Judaeus,[49] whose *floruit* was in the first half of the first century after Christ, has occasion to mention the story of the ark. He says that the raven is a symbol of wickedness and that it is an insolent, unsociable bird. It is hard to believe that he could have refrained from incorporating the supposed reason for the raven's change in color if he knew it, and it is hard to believe that he did not know it if it existed in his time. Is his date a *terminus post quem* for the story of the change in color of the raven in connection with the flood?[50]

[47] Basset, René, *Contes populaires berbères*, Vol. 12, No. 11, of Collection de contes et de chansons populaires.

[48] Genesis vi. 7.

[49] *Quaest. et Solut. in Genesin* 2. 38 (cf. 35).

[50] Owing to a lack of training in Semitics I am unable to investigate this question.

There is, I think, a second reason for assuming that white was the original color of the crow and the raven. There are albinos among these birds and stories have been told about them also. The white birds draw attention to themselves not only through contrast with the color of their companions, but also through being ostracized at times by their mates. It would have taken a courageous story-teller to postulate red or yellow as the original color.

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IRRIGATION WITHOUT AGRICULTURE

JULIAN H. STEWARD

OF SEVERAL hypotheses to explain the domestication of plants, that advanced by Spinden is the most plausible. Arguing from the association of irrigation in a semi-arid country with the earliest record of cultivated plants, in Mesopotamia, Egypt and Peru, he inclines to regard irrigation as a "conception which accounts for the very origin of agriculture itself."[1] This view is supported in a highly suggestive manner by recent data from the Eastern Mono (Northern Paiute) of California.

The Eastern Mono belong culturally and linguistically to that widespread Shoshonean stock which inhabits the high, arid basin of Utah, Nevada and parts of adjoining states. The division of the Eastern Mono to which we have reference here lives on the western side of the great basin and is concentrated in Owens Valley, a long, narrow valley at the eastern base of the lofty, snow-capped range of the Sierra Nevada Mountains. Like Nevada and Utah, this country has slight precipitation and supports little vegetation other than sage-brush. Although many clear streams flowed from the Sierra across the valley floor to Owens River, verdure was to be found only along their immediate banks and in a few swampy lowlands.

Culturally the Eastern Mono were closely affiliated with their relatives to the east and were in most respects among the most primitive of North American tribes. Their industries, arts and social organization were but slightly developed. Their relation to their environment was simple and direct; their food-supply was derived from hunting and gathering. Wild seeds, roots and

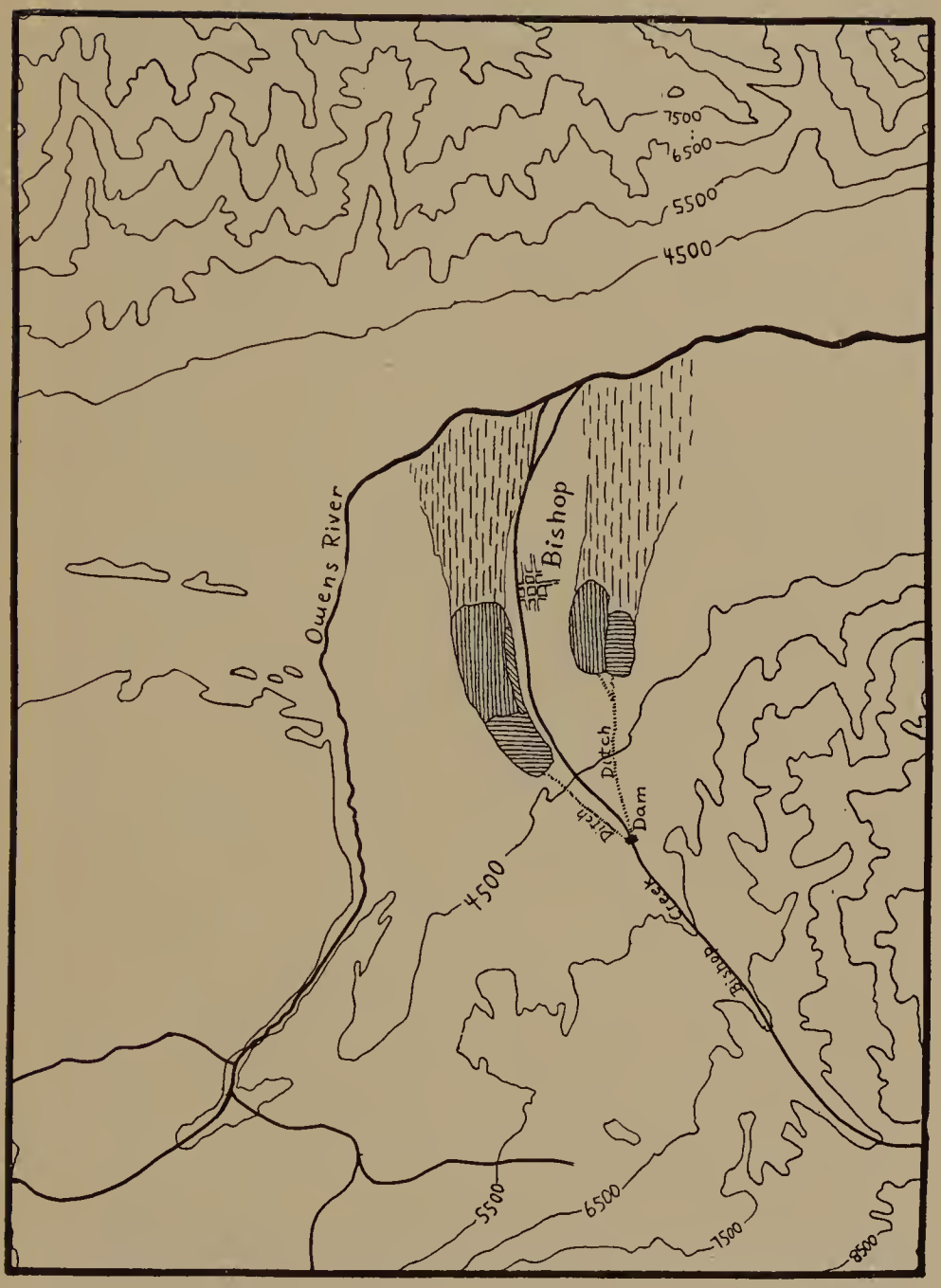
[1] Spinden, H. J., *Ancient Civilizations of Mexico and Central America.* Am. Mus. of Nat. Hist., Handbook Series, 3, 1922, pp. 47–49. This view is more fully expressed by Spinden in "The Origin and Distribution of Agriculture in America," *Proc. of the 19th Internat. Congress of Americanists*, Washington, 1915, pp. 269–276.

tubers abounded in the valley, piñon nuts grew abundantly in the mountains, and deer, antelope, fish, birds and other game were plentiful. Their methods of obtaining and preparing this food were not different from those of their neighbors.

In one respect, however, they stood unique. Not only did they gather wild seeds and roots, but in certain localities they took the pains to increase the yield of several of the more prolific seed plots by irrigation. They did not till the soil, plant or cultivate. They merely intensified by irrigation what nature had already provided. Although they thus lacked the other essentials of an agricultural complex, they had made one significant advance. They had in fact undertaken irrigation upon a considerable scale.

The greatest development of irrigation by the Eastern Mono had been worked out at the northern end of Owens Valley in the vicinity of the present town of Bishop (Map 3), where the native population was most dense and the natural facilities were greatest. At this point, Bishop Creek, a fine, voluminous stream, emerges from the Sierra and flows across the valley floor, which is here some ten miles in width, to Owens River. Recent irrigation by the white man has completely disarranged the course of Bishop Creek, but formerly it flowed near the present town of Bishop as indicated on the map. On each side of Bishop Creek were extensive plots of wild seeds and tubers, chief among which were *tüpüs'i* (a small bulb of the lily family), and *náhavita* (a seed-bearing brush). These plots sloped up the gradually inclined valley floor and roughly paralleled the creek. The largest of the two, that on the northern side of the creek, was approximately four miles in length and from a mile to a mile and a half in width. The western half of this abounded in *tüpüs'i*, the eastern half in *náhavita*. The southern plot, approximately two miles square, had a large plot of *náhavita* and a smaller one of *tüpüs'i*.

The irrigation system comprised a dam and two ditches, one running to each plot (Map. 3). The dam was constructed in Bishop Creek canyon, a mile below its emergence from the mountains. One ditch ran from this dam up the northern side of the canyon (Pl. XXXVII, Fig. 1) and out across the valley floor to the northern plot (Pl. XXXVII, Fig. 2). This has been used



Map 3. Paiute irrigation

in comparatively recent times by the present ranchers, but it is still known locally as "Paiute Ditch." The second ditch ran similarly to the southern plot, but of this I could find no trace. The construction of the dam and ditches involved no great engineering problems, but, as a piece of sheer labor, in view of the primitive tools which must have been used, was tremendous.

The position of irrigator was invested in a single man and was considered honorary, although the incumbent received no assistance in his labor. He was chosen each spring at a popular gathering and the date for building the dam was set at the same time. At the appointed date, about twenty-five men accompanied the irrigator to the dam site and assisted him to build a dam of boulders, brush, sticks and mud. The water was then turned down the appropriate ditch and the remainder of the work left to the irrigator. Despite the large area to be watered, his task was not a difficult one, for the even surface and the gentle slope of the land were to his advantage. He simply directed the water by small ditches and dams of mud, sod and brush and allowed it to run, returning from time to time to change its course. His only implement was a pole about four inches in diameter and eight feet long (*pāvo'ro*). Below the main plots, where the overflow water was permitted to take its course and wander on to the river, other seeds abounded and benefited by this accidental irrigation (Map 3). Among these were *mono* (a grass), *sü'nü'*^{ü} (?) and *pāü'-ponida*(?), *waiya* (a tall grass), and *pāk* (sunflower).

Of particular interest is the alternation of the two major plots each year. The explanation given was that it "prevented exhaustion of the soil." A more accurate explanation would probably be that it enabled the plots to reseed themselves. In the spring the water was turned on one plot (and the stranded fish gathered from the creek bed!). In the fall when the seeds and *tüpüs'*^{i} bulbs were ready for harvesting the dam was destroyed and the water allowed to flow once more down the main channel (and the fish gathered from the irrigation ditch). The seeds were collected into a conical carrying-basket by a ladle-shaped basketry seed-beater and the roots dug with the usual digging stick.

There was another suggestion of incipient agriculture here.

The Eastern Mono used a species of wild tobacco which they assisted by burning off the land each spring and trimming away the poorer leaves on the plant in the summer so as to favor the large leaves. They neither irrigated nor planted it, however.

The Eastern Mono were thus on the verge of agriculture without quite achieving it. Planting, tilling and cultivating were unknown to them. Other communities in Owens Valley also practised irrigation, but it has not been reported elsewhere in California or Nevada. How then did the Eastern Mono come by theirs? Whatever answer is given to this question, it is highly suggestive concerning the origin of agriculture.

Map 4 (p. 155) shows the greatest distribution of agriculture in North America. The Eastern Mono were not far removed from true horticulturalists. Less than two hundred miles separated them from the Chemehuevi, whom Kroeber describes as occasional horticulturalists,[2] while the Mojave, three hundred miles distant, were confirmed agriculturalists.[3] It is a remarkable fact, however, that, in view of the antiquity of agriculture in the Southwest[4] and its wide distribution in the East, it should have gone little beyond the Colorado River into California. Kroeber suggests that this halt may be accounted for by the adequacy of the natural food-supply in California.[5] It is unlikely, however, that the Eastern Mono should have derived the stimulus to irrigation from the south, for not a single one of the cultivated plants of that region was known to them, while neither the Chemehuevi nor the Mojave practised irrigation.

If the Eastern Mono derived their irrigation by borrowing, it is more reasonable to look to an ancient extension of the Pueblo an culture in the east for the source stimulus and not among present cultures, for the Shoshonis and Southern Paiute of Nevada are extremely primitive. Recent research has revealed a wide

[2] Kroeber, A. L., *Handbook of the Indians of California*, Bureau of American Ethnology, Bull. 78, Washington, 1925, p. 597.

[3] *Ibid.*, p. 735.

[4] Kidder places the Basket Makers, the first agriculturalists of the Southwest, at between 2000 and 1500 B.C. *An Introduction to the Study of Southwestern Archaeology* (Andover, Mass., 1924), p. 119.

[5] *Ibid.*, p. 815.

western distribution of early Southwestern cultures. Harrington's work at "Lost City," near Las Vegas, Nevada, showed the presence there of an agricultural people somewhere between the Basket Maker and Early Pueblo stages [6] and Loud and Harrington's discoveries at Lovelock Cave, Nevada, indicate a non-agricultural culture which is to be equated roughly to the Basket Maker culture.[7] Rogers has found Basket Maker influence in the Mojave Sink region of California.[8] A fairly well developed pottery was known among the Eastern Mono as far north as Mono Lake, California, and there is every indication that this reached them by diffusion from the Southwest across Nevada. An early Southwestern influence on the social and ceremonial organization of southern California has been demonstrated by Strong.[9] It is plausible then to postulate an early Southwestern influence which was remotely felt as far west as east central and southern California, but was later cut off by the pushing in of tribes of low cultural status. The Eastern Mono were sufficiently subject to this influence from the Southwest to derive pottery and possibly irrigation from the east. Whether this was derived from the Basket Maker culture or from the wide distribution of the Early Pueblo culture (Map 4), [10] is not certain. Probably Basket Maker and other early cultures continued to survive in the West, but felt a limited influence of later Pueblo cultures.

The existence of irrigation among the Eastern Mono may be explained then as either (1) a survival of an early practice of irrigation which preceded cultivated plants in the Southwest, or more probably (2) as a differential borrowing in which irrigation was taken from the horticultural complex, while the seemingly more important elements, the cultivated plants themselves, were

[6] Harrington, M. R., "A Primitive Pueblo City in Nevada," *Am. Anthropol.*, N. S., 29 : 262–277. 1927.

[7] Loud, Llewelyn L., and Harrington, M. R., *Lovelock Cave.* Univ. of Calif. Publ. in Am. Archaeol. and Ethnol., 25 : viii+183. 1929.

[8] Rogers, Malcolm J., *Report of an Archaeological Reconnaissance in the Mohave Sink Region.* The San Diego Mus., Archaeology, 1 : 1–13. 1929.

[9] Strong, W. D., "An Analysis of Southwestern Society," *Am. Anthropol.*, N. S., 29 : 1–61. 1927.

[10] Kidder, *op. cit.*, Fig. 25, p. 127.

MAP 4. Agriculture in native America. The solid black mark indicates the distribution of irrigation among the Eastern Mono

not taken. The second possibility indicates, however, that irrigation was an early feature of southwestern agriculture. It is also an interesting commentary on diffusion in showing that a close-knit complex may break down, the apparent *raison d'être* being disregarded while the secondary element is taken.

A third possibility is the local and independent origin of irrigation. In this case the original suggestion probably came from the swampy lowlands in Owens Valley where it is obvious that moist soil — a natural irrigation — has produced a more prolific growth. Irrigation, then, would be simply an artificial reproduction of natural conditions. This possibility is not to be overlooked.

Whatever may be the source of irrigation among the Eastern Mono, it is quite in line with Spinden's views on the origin of agriculture. If it came to them by borrowing, it demonstrates that irrigation was early present in the American agricultural complex and may even have preceded it. If it came by local invention, it is an illustration of a people who were on the verge of horticulture and suggests the possibility of a similar origin elsewhere.

University of Michigan

PLATE XXXVII

FIG. 1. "Paiute Ditch" as it emerges from Bishop Creek canyon

FIG. 2. "Paiute Ditch" three quarters of a mile above the northern seed flat

FAMILY ALLOWANCES VS. THRIFT

HOWARD F. BIGELOW

WHEN I first came upon Professor Douglas's book, *Wages and the Family*, I was interested in his presentation for two reasons, one because I had for some time been looking for a careful analysis of the normal family as the basis for wage determination, and the other because, while I agreed thoroughly with his conclusion that the normal family is satisfactory only as a statistical device and not as a basis for wage determination, I disagreed equally whole-heartedly with the plan for family allowances which he suggested as a substitute for wages based upon the needs of the normal family.

Douglas believes that the normal family basis of wage payment is unsound because, as he says, "it would probably be impossible for American manufacturing industries to pay all adult male workers enough to maintain a family of five. . . . To pay such a wage in the English-speaking countries would be more than adequate for between 70 and 80 per cent of the workers, while it would be less than was needed for from 10 to 15 per cent. To grant such an increase in the United States would mean paying for no less than 48,000,000 fictitious dependents, while combined with equal pay for women it would mean paying for no less than 72,000,000 non-existent people." [1]

As a remedy for the apparently inadequate wages received by many individual family heads in industry, he suggests the substitution for our present system of wages based roughly upon a worker's productivity of a system of wage payment based frankly upon the needs of the workers. "Should not the real principle be that, as needs are not uniform, but variable, so the minimum wage should not be uniform, but should vary according to the needs of

[1] Douglas, Paul H., *Wages and the Family* (Chicago, The University of Chicago Press, 1925), p. 41.

the worker and his family? In other words, should not the single man receive enough to maintain him, plus a comfortable margin to permit his saving for marriage, but not enough to support the non-existent family of five? Then, as he married, and as children came, he would receive additional allowances to meet the extra cost which they imposed. In this way, those with large families would be protected in a manner that would be impossible under any uniform minimum, and those with few or no dependents would not be given an unneeded surplus."[2]

According to this plan, a worker would receive a single man's wage which might vary roughly from group to group as wages do at the present time. The difference between the single men's wages and the wages actually earned by the workers would be paid into a fund, administered either by the industry or by the government, from which allowances would be paid to the individual family heads on the basis of the number of individuals actually dependent upon them. He bases his argument for his plan upon two main lines of reasoning, first, that such a plan would eliminate the burden upon industry of requiring the payment of wages necessary for supporting the non-existing members of normal families, and second, that such a plan would provide more adequately for the proper upbringing of the next generation, since, "while only a small percentage of the families have more than three dependent children at any one time, a much larger percentage of the total number of children is included in these families."[3]

It is easy to check roughly upon the validity of his analysis of the "normal family" basis for wage determination in the United States. In 1920 there were 42,600,000 gainfully employed in a population of 105,000,000, or approximately two wage earners out of every five in the population, instead of the one out of five which

[2] Douglas, *op. cit.*, p. 41.

[3] "The 1901 investigation by the United States Bureau of Labor showed that families with four and five children formed only 16 per cent of the total number, but 37 per cent of all the children were found in these very families. . . . The important feature to be considered in such a situation would not so much be that 10 to 15 per cent of the families would have a deficiency in their budgets as that from 35 to 40 per cent of the children would lack the essential things of life." — *Ibid.*

the normal family presupposes. Even in 1925, when the proportion of gainfully employed had shrunk from 40 to 37 per cent, according to the Census Bureau estimates, the decrease was not sufficient to change his conclusions materially.

There is another factor which is apparently overlooked by those who advocate the normal family basis of wage determination which helps to account for the fact that at any given time only a small percentage of families actually consist of a man, his wife and three dependent children. Such studies as are now available seem to indicate that from 65 to 70 per cent of the families in the United States have fewer than five members, 10 to 15 per cent have more than five members, while not more than 15 to 20 per cent of the families at any one time conform to the definition of the normal family. This can be largely explained by the fact that, even if a family does its duty and raises the three children necessary to replace itself and to make up for those who are unable or unwilling to have children of their own, such a family will conform to the definition of a normal family for only from 10 to 15 years of its existence as a family. Assume that a family does raise three children. The oldest child will be at least 4 and perhaps 6 years old when the third child is born. Assuming that the oldest child completes high school at 18, and then is able to become self-supporting, and was 6 when his younger brother was born, this family would be a normal family for only 12 years, and if the oldest was 4, for only 14 years, and if the oldest child was 8, for only 10 years of its entire existence as a family.

A more definite idea of the changing burden of supporting such a family can be secured by using the Sydenstricker and King table of relative total costs for individuals of varying ages of both sexes worked out from studies of the expenditures of a large number of families in South Carolina cotton-mill villages (seeTable I, p. 160).[4] In this table the average costs for adult males 24 years old is taken as the unit, and the total costs of other individuals is stated as a percentage of the unit costs for 24-year-old males.

[4] Sydenstricker, Edgar, and King, Wilford I., *A Method of Classifying Families according to Incomes in Studies of Disease Prevalence*, U. S. Treasury Department, Public Health Reports, 35 (1920): 2829–2846.

TABLE I

Relative Total Costs for Individuals of Varying Ages of Both Sexes

This table was worked out on the basis of the actual consumption and expenditures of a large number of families in South Carolina cotton-mill villages. It covers all items of expense, including food. The table is condensed from Sydenstricker and King's report by Douglas, Hitchcock and Atkins, *The Worker in Modern Economic Society*, p. 289.

The average for adult males of 24 = 1.

"It would of course be probable that the relative total costs of women would be much higher in families above the subsistence group" (Sydenstricker and King).

Age	Male	Female	Age	Male	Female
1	.24	.24	20	.98	.78
3	.31	.31	25	1.00	.79
5	.35	.35	30	.97	.78
7	.40	.40	35	.95	.76
9	.44	.43	40	.93	.74
11	.50	.48	45	.92	.72
13	.59	.55	50	.89	.69
15	.74	.65	60	.81	.66

The table which they prepared is limited in its application, of course. It does not measure accurately the situation for middle-class families where a college education, or perhaps even a high school education, is part of the program. It is interesting in this connection simply because it is indicative of the varying minimum costs involved.

In Tables II and III (pp. 162-164), the Sydenstricker and King table is applied to determine the changing unit costs of the needs of two families. Family A consists of a man and his wife who marry when he is 26 and she is 24. They raise the family of three children. The first, a boy, is born at the end of the second year. The second, a girl, is born two years later, and the third, a boy, is born two years after that. Family B consists of a man and his wife, married at the same age who bring up a family of two children. In this case, as in the case of Family A, it is assumed that the

first child, a boy, is born at the end of the second year, and the second, a girl, is born two years later. Unit costs are figured for the first 30 years of the life of the family.

It is usually estimated that the cost of living for a normal family figured on the basis of this scale is approximately that for supporting 3 adult males 24 years of age, which is the unit upon which the scale is based. In the family bringing up three children during the first 12 years of the life of the family unit costs are below the 3 units usually set down as the cost for the normal family. For ten years the unit cost of the family is at or above this figure and then falls rapidly as the children in turn assume responsibility for self-support. There are 12 years in which the family has a chance to prepare for the 10 years of maximum expense which follow. At the end of the 24th year of the life of the family, the father and mother are freed from the burden of bringing up the children. The man is 51, and ought to have some years left in which to make provision for old age. The unit costs of the family are now even lower than they were before the children began to arrive. While the head of the family may have passed the peak of his earning power, he still has from 10 to 20 years before the usual age of retirement. Because of the reduction in the current demands upon the family income during this period a considerable amount of saving ought to be possible.

In the case of family B with two children, it is 17 years before the unit costs in the family reach the 3-unit standard, and they remain at or above the 3-unit mark for only 3 years. The family is freed from the expense of bringing up its family at the end of its 22d year instead of its 24th, and has from 12 to 22 years in which to prepare for old age, in place of the 10 to 20 years in the larger family.

The total unit cost for Family A for 25 years is 69.41 units or an average cost of 2.78 units per year. For Family B it is 60.23 units, an average cost of 2.41 units. During the first 25 years of its life the annual unit costs in Family A vary from 1.79 to 3.90 back to 1.60 units, an upward swing of 2.11 units and a downward swing of 2.30 units. In Family B during the same period unit costs vary from 1.79 to 3.27 and back to 1.60, an

TABLE II

Relative Unit Costs for Two Families for Thirty Years

Family A

	1st year		2d year		3d year		4th year		5th year		6th year		7th year		8th year		9th year		10th year	
	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost
Husband.....	26	1.00	27	1.00	28	.99	29	.98	30	.97	31	.97	32	.97	33	.96	34	.96	35	.95
Wife.....	24	.79	25	.79	26	.79	27	.79	28	.79	29	.79	30	.78	31	.78	32	.78	33	.77
First child, boy.					1	.24	2	.27	3	.31	4	.33	5	.35	6	.37	7	.40	8	.42
Second child, girl									1	.24	2	.27	3	.31	4	.33	5	.35	6	.38
Third child, boy.													1	.24	2	.27	3	.31	4	.33
Total.....		1.79		1.79		2.02		2.04		2.31		2.36		2.65		2.71		2.80		2.85

	11th year		12th year		13th year		14th year		15th year		16th year		17th year		18th year		19th year		20th year	
	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost
Husband.....	36	.95	37	.95	38	.94	39	.94	40	.93	41	.93	42	.93	43	.93	44	.92	45	.92
Wife.....	34	.77	35	.76	36	.76	37	.76	38	.75	39	.75	40	.74	41	.74	42	.74	43	.74
First child, boy.	9	.44	10	.47	11	.50	12	.55	13	.59	14	.67	15	.74	16	.79	17	.84	18	.89
Second child, girl	7	.40	8	.42	9	.43	10	.46	11	.48	12	.52	13	.55	14	.58	15	.65	16	.68
Third child, boy	5	.35	6	.37	7	.40	8	.42	9	.44	10	.47	11	.50	12	.55	13	.59	14	.67
Total.....		2.91		2.97		3.03		3.13		3.19		3.34		3.46		3.59		3.74		3.90

	21st year		22d year		23d year		24th year		25th year		26th year		27th year		28th year		29th year		30th year	
	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost
Husband.....	46	.91	47	.91	48	.90	49	.90	50	.89	51	.88	52	.88	53	.87	54	.87	55	.86
Wife.....	44	.73	45	.72	46	.72	47	.71	48	.71	49	.70	50	.69	51	.69	52	.68	53	.68
First child, boy.																				
Second child, girl	17	.70	18	.73																
Third child, boy	15	.74	16	.79	17	.84	18	.89												
Total.....		3.08		3.15		2.46		2.50		1.60		1.58		1.57		1.56		1.55		1.54

Family B

	1st year		2d year		3d year		4th year		5th year		6th year		7th year		8th year		9th year		10th year	
	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost
Husband	26	1.00	27	1.00	28	.99	29	.98	30	.97	31	.97	32	.97	33	.96	34	.96	35	.95
Wife	24	.79	25	.79	26	.79	27	.79	28	.79	29	.79	30	.78	31	.78	32	.78	33	.77
First child, boy					1	.24	2	.27	3	.31	4	.33	5	.35	6	.37	7	.40	8	.42
Second child, girl									1	.24	2	.27	3	.31	4	.33	5	.35	6	.38
Total		1.79		1.79		2.02		2.04		2.31		2.36		2.41		2.44		2.49		2.52

	11th year		12th year		13th year		14th year		15th year		16th year		17th year		18th year		19th year		20th year	
	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost
Husband	36	.95	37	.95	38	.94	39	.94	40	.93	41	.93	42	.93	43	.93	44	.92	45	.92
Wife	34	.77	35	.76	36	.76	37	.76	38	.75	39	.75	40	.74	41	.74	42	.74	43	.78
First child, boy	9	.44	10	.47	11	.50	12	.55	13	.59	14	.67	15	.74	16	.79	17	.84	18	.89
Second child, girl	7	.40	8	.42	9	.43	10	.46	11	.48	12	.52	13	.55	14	.58	15	.65	16	.68
Total		2.56		2.60		2.63		2.71		2.75		2.87		2.96		3.04		3.15		3.27

	21st year		22d year		23d year		24th year		25th year		26th year		27th year		28th year		29th year		30th year	
	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost	Age	Unit cost
Husband	46	.91	47	.91	48	.90	49	.90	50	.89	51	.88	52	.88	53	.87	54	.87	55	.86
Wife	44	.73	45	.72	46	.72	47	.71	48	.71	49	.70	50	.69	51	.69	52	.68	53	.68
First child, boy																				
Second child, girl	17	.70	18	.73																
Total		2.34		2.36		1.62		1.61		1.60		1.58		1.57		1.56		1.55		1.54

TABLE III

Relative Unit Costs for Two Families for Thirty Years

Year	Unit Cost		Year	Unit Cost	
	Family A	Family B		Family A	Family B
1	1.79	1.79	16	3.34	2.87
2	1.79	1.79	17	3.46	2.96
3	2.02	2.02	18	3.59	3.04
4	2.04	2.04	19	3.74	3.15
5	2.31	2.31	20	3.90	3.27
6	2.36	2.36	21	3.08	2.34
7	2.65	2.41	22	3.15	2.36
8	2.71	2.44	23	2.46	1.62
9	2.80	2.49	24	2.50	1.61
10	2.85	2.52	25	1.60	1.60
11	2.91	2.56	26	1.58	1.58
12	2.97	2.60	27	1.57	1.57
13	3.03	2.63	28	1.56	1.56
14	3.13	2.71	29	1.55	1.55
15	3.19	2.75	30	1.54	1.54

TABLE IV

Relative Unit Costs for Two Families for Twenty-five Years

Family	Total costs 25 years	Average costs 25 years	Maximum variation in costs 25 years
A	69.37	2.78	2.30
B	60.23	2.41	1.48

upward swing of 1.48 and a downward swing of 1.67 units (see Table IV).

Obviously, from this point of view the chief financial problem facing every family is that of maintaining its solvency during the period of maximum expenditure. In some ways the problem is analogous to that of the business concern during a period of comparatively rapid expansion, when it is necessary to increase the expenses of the business faster than the income increases. In

the case of the family, if the income increases in proportion to expenditure, the problem is simple enough. If, however, the income fails to increase as rapidly as the demands upon it, the solvency of the family is threatened and drastic remedies are necessary. The corporation would borrow at the bank, or, if its credit facilities were exhausted, would liquidate some of its other assets, selling raw materials, or goods in process, or, if the emergency were great enough, disposing of some of its fixed assets which were not then absolutely essential to the successful operation of the plant.

In the case of the family, what are the remedies which are available? In the first place, most families can reasonably look for some increase in the amount of the family income. The head of the family in many cases is in line for promotion to a better paying position. If he happens to be engaged in a trade in which wage rates are fixed by custom or by trade-union agreement, he usually finds that his earnings are increased as he secures the more regular employment of the dependable family man. It is well to recognize as Douglas does that, while the children are growing up, in most cases it is impossible and certainly undesirable for the wife to seek employment outside the home or to increase the family income by taking in roomers or boarders. Child-labor laws in most industrial states prevent the regular employment of the older children until they are 16 or 18 and very much restrict the opportunity for after-school, Saturday and vacation employment. In a good many cases some income may be secured from these sources. It is probably not wise to count upon it in estimating expected family income. Though in all probability the family income will increase somewhat as expenditures increase, the family in the moderate income group can hardly expect an increase in its income from all those possible sources great enough to keep up with its rapidly increasing expenditures.

A second possibility for the family would be to supplement the inadequate income by borrowing. The credit opportunities open to the ordinary individual are, however, narrowly restricted. Though it is possible to take care of temporary deficits by the use of credit, in most cases long-time borrowing cannot be relied upon.

A third suggestion which is frequently made is that the family

during these years of heavy expenditure should draw upon the surplus accumulated from savings of earlier years. Here the usual criticism is that it is not possible nowadays for a person with a moderate income to set aside an accumulation large enough to be of value.

Evidently these means of bridging the gap between income and expenditures in most cases prove to be entirely inadequate, and yet family after family is successfully meeting the problems which a period of maximum expenditures incurs. How do they do it? This paper was written in order to suggest one or two possibilities which perhaps have been overlooked so far in the study of family expenditures. Most analyses have been made on the basis of the adequacies and inadequacies of a family's money income rather than on the basis of the real or material income of the family. The fundamental importance of real, rather than money, income has too long gone unemphasized. Provision for the future involves more than provision of money income. Money income is only a means to the end. Perhaps, also, real income is only another means, and the satisfactions which one's standard of living calls for are the ultimate ends to be obtained.

We do not buy all our satisfactions with money. Much of our real income may be produced within the home. It is possible to make a modest money income secure a large number of want-satisfying commodities if it is spent in such a way that it can be combined with the intelligently directed labor of the members of the family within the home. For example, the investment of $2.50 in a pair of clippers saved one family $165 in haircuts for its two boys. In another family an hour's time and a dollar's worth of materials replaced a furnace coil, a job for which a plumber would charge $10.

It is possible for a family to supply many of its needs during its period of maximum expense with a minimum outlay by buying materials which are necessary for production for use within the home. Other things being equal, the larger the family, the greater is the amount of labor available for such production for use.

But let us assume that the Sydenstricker and King tables

have already made allowance for the addition of a maximum amount of this real income within the home, and represent the expenditure of money necessary. Another method by which the difference between income and expenditure can be evened is one which for want of a better name we will call "planned expenditure." This method in brief is as follows: It assumes that ordinarily a family has but little surplus and less inclination for saving. Therefore, instead of saving money during its earlier years, a family should purchase durable consumption goods in advance of need. By so doing it will secure some benefits from these purchases immediately and will in addition be accumulating family capital for use during the period of the maximum expenditure in the form of the instalments of service remaining in these goods.

What are some of the durable commodities which can be purchased to advantage in advance of need? Instalment service goods not only can but must be purchased in this way. In the first place every family needs furniture and household equipment. According to this plan, during the first two or three years of the life of the family a considerable amount of money might well be spent for permanent equipment for the home. In selecting this equipment, care should be taken to purchase a modest amount, emphasizing conservative styles and durable goods, rather than the number of pieces to be secured. This purchase may be paid for in part out of savings made before marriage and in part on the instalment plan. These goods must be purchased from a reputable house dealing in good furniture. It would be wise to have most of this equipment paid for in the first three or four years before the expenses incident to the coming of children begin to pile up. In addition to furniture it may seem desirable to purchase such articles of equipment as a piano, a radio, a victrola, a sewing-machine, a washing-machine or a vacuum-cleaner in the same way. Care must be taken to buy durable dependable equipment which will not soon wear out or become obsolete.

The purchase of the home is the largest single item of expenditure of this sort. Suppose that a family with an income of $1800 to $2000 a year decides to buy its own home and selects one which would cost from $3600 to $4000, paying $500 down and $40 a

month, including interest and principal for the balance. On this basis they would have their home paid for in not far from 12 years. This would mean, of course, that in early years of their family life housing expenses would be relatively heavy. Forty dollars a month would not be exorbitant rent for a family in this income group, but taxes, repairs, and depreciation would have to be added to the monthly payments. In this case the amount saved would probably amount to not far from $300 a year. When the home is paid for it will add to the income the equivalent of $200 a year in interest on the investment, and in addition a chance to use up part of the principal each year in postponed repairs and depreciation. Besides, home ownership will provide the basis for securing credit on first mortgage terms to the amount of at least one half of its value.

If the standard of the family includes an automobile, here is another place in which services can be purchased in advance of need and used up during the period of heavy expenditure. Suppose that a family starts with a new car at the beginning of its 10-year period of maximum expenses, drives it 5 years, trades it for a 2-year-old car which it drives 3 years and trades for a 3-year-old car which it drives 2 years. This will provide 10 years of transportation with a minimum expenditure of current income. When the family expenses get back to normal, by the first contributions of the younger wage earners, it will be possible to reinvest in a new car. Is it not just as legitimate to use up a $500 or a $1000 car as it is to use the proceeds from the sale of a $500 or a $1000 bond?

It has been said that a family is living in poverty when it exists by making inroads either upon the health of its members or upon its supply of furniture and household goods. According to this definition, a family following the plan outlined above might be considered to be living in poverty since it is using up its stock of furniture and equipment. But, as long as health is unimpaired, the impairment of the family capital investment in a stock of furniture and other durable consumption goods does not necessarily mean poverty. Selling a liberty bond or drawing on a savings account is not evidence of poverty, but the reverse. A

family sinks into poverty not when it uses up its capital, but when it no longer has any capital to use. It sinks into poverty only if and when its capital proves inadequate to tide it over the period of insufficient income. The using up of furniture and other goods without replacing them seems to be a legitimate means of cutting down the outlay necessary during a period of heavy expenses. The problem, then, for the ordinary individual of small or moderate means is so to plan his expenditures that they will equal his income throughout the entire life of the family. He should spend more for durable goods in the early years of the family life, and later on cut these expenses to a minimum, neglecting replacements, if necessary, concentrating on immediate necessities until the period of heavy expenses is past, and then again build up a supply of durable consumption goods and put away such savings as he is able in preparation of the next period of inadequate income, old age.

A good many people are much worried if their family is not able to save money every year of its existence. According to our analysis, the average family should not feel it necessary to add to their savings every year. The first few years should be spent in accumulating durable goods, furniture, household equipment, a home, a car, a radio, washing-machine, whatever the standard of the family demands. Curtailment of expenses, if any, should be made in such items as expensive food, overelaborate clothing and casual items such as unnecessary travel, frequent shows, meals outside the home, ice cream at the drug store, and other similar expenses which give only a moderate amount of immediate satisfaction. During the next 8 to 10 years the family need not worry if it fails to get ahead financially. These years should be regarded as normal years of capital consumption. The only hope of additional accumulation during this period comes from unusually rapid increase in income. A doctor, a lawyer, or a successful business man may be able to increase his income as fast or faster than his expenditures, but the salaried man and the ordinary wage-worker, though his income may increase to some extent, should not worry about these lean years, if he has provided enough capital to carry him through this period in the years before.

What are the advantages of such a plan over the family wage system which Douglas suggests? In the first place, it is possible to maintain the stimulus to production which comes from the payment of the worker on the basis of his ability and productivity. In the second place, it does not give any stimulus to overpopulation, but distinctly places a premium on foresight and adaptability. In the third place, this plan is absolutely independent of any government control. In the fourth place, it permits variety in want satisfactions. Each family is free to satisfy the desires of its own members in accordance with its own standards. Finally this plan meets the theoretical objections of Messrs. Foster and Catchings. It does solve the problem which faces every family of providing for its own future without the ill effects, either real or imaginary, which may come from withdrawing present purchasing power in order to have it later on.

What is necessary for a wider application of this method for solving the problems arising from inequalities in needs and income? In the first place, it is necessary for the ordinary family to have a wider knowledge of probable incomes and probable expenditures. It is necessary also for a family to know how to buy truly durable consumption goods. If a family is to make a success of this plan, it must have clearly in mind the wants which it is trying to satisfy and must buy goods with a view to the long-time satisfactions they are expected to hold. Resistance must be developed to the attempts of the manufacturer and the salesman to sell goods which are manufactured solely with the aim of making them obsolete in as short a time as possible. The general adoption of such planned expenditure will come only with a wider knowledge of the fundamental principles of economics of consumption and the marketing structure from the consumer's standpoint. Such knowledge can be safely popularized only after the field of consumption economics has been developed to a place where it is on a par with the economics of production.

This paper does not pretend to be the result of any detailed study of the problem. It is simply one suggestion of the sort of thing which is being overlooked by economists who are advocating highly artificial schemes such as single men's wages and family

allowances. Perhaps this plan assumes too high a degree of intelligence on the part of the American with a moderate income. The other type of plan implies that he has no intelligence at all. Why penalize the intelligent for the sake of the weak and uneducated? Why not devote the same amount of attention to the working out of ways and means of spending money intelligently, which, in the past, has been devoted solely to developing schemes which will make it unnecessary for the consumer to exercise more than a minimum amount of intelligence in disposing of his income?

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STABILIZATION OF INDUSTRIAL RELATIONS IN THE BUILDING TRADES

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THE building industry has attracted public attention for many years. Legislative investigations have labeled it as one of the worst conducted industries in the United States. A Chicago arbitrator in 1921 referred to it as "a thing diseased . . . a line of activity which the wise dollar avoided." Although highly organized for labor relations, building construction is subjected to frequent stoppages on account of disagreements between the workers and their employers. The engineer and efficiency expert point out that in many instances the industry operates with primitive methods, using hand labor where mechanical means are available to do the work better at less cost. This inefficiency in technique is accompanied by inefficiency in business methods, where antiquated ways of estimating, selling and competing for work entail much waste and duplication of effort. The situation is further aggravated by an unusually keen competitive struggle, often resulting in combinations among various producing groups, which restrict competition, maintain prices and apportion business territory. At times even labor leaders are made partners in a conspiracy to mulct the consumer. These conditions have aroused a deep public interest in the problems of the building industry.

The student is also interested in the problems presented by this industry. In the building trades he finds the most important remnant of the technique of the handicraftsman. The changes taking place in technical methods date from a comparatively late period and in many instances have only just begun. Here also he finds the most powerful group of labor unions in the country, at the present time the largest constituent group within the American Federation of Labor, numbering more than one million men. These workers, organized in seventeen international unions

and federated in the Building Trades Department, have exerted an important influence on the trend of industrial relations in the building trades. The working rules enforced by these unions, the systems of collective bargaining developed in many localities, the jurisdictional conflicts among the unions themselves, the methods used at times to enforce their programs, and the limited point of view entertained by the building trades unions generally — all these have given the labor organizations in the building industry a distinct place in the public mind.

ECONOMIC BACKGROUND

The labor-relations problems produced by this industry have been influenced by the industrial environment in which the workers and employers operate. This environment has been characterized by two outstanding problems. The first is the constantly changing methods of building construction. The recent arrival of the industrial revolution in the building industry has had an important reaction on the issues facing the workers and employers and on the outlook of trade unions. Hand methods of construction and manual labor are slowly giving way to highly mechanized processes. The modern construction company with its emphasis on specialization is gradually extending its control over the industry's operations. New materials have already replaced the supremacy of lumber and in modern fireproof building wood and wood products are being replaced by metal. Not only the material-producing industry but the erection processes themselves are being mechanized at a rapid pace. Although the mechanical bricklayer has not yet made his appearance and although for small-house construction hand tools and primitive methods are still prevalent, the invasion of hoisting machinery, the paint spray and the plaster gun have been a real problem to the skilled workers.

Several trades have been particularly affected by these changes. The carpenters, for example, have had to meet the competition of new materials and new machinery. The former, such as metal trim, threatened to transfer work to other trades and the latter made possible the mass production of wood products in factories,

delivered to the job ready for installation. To meet the danger from the first innovation the powerful carpenters' union has been at war with almost all the other sixteen national unions in the building industry — defending its jurisdictional claims against all rivals. The possibility of machine-produced wood trim being delivered to the job ready for installation forced the union to extend its control over factory production — and in many cities the rules prohibiting carpenters from erecting non-union-made wood products were successfully enforced.

Other trades have had similar problems. The net results of these changes have been to increase specialization and subdivision of the trades, reduce skill, increase the possibility of seasonal unemployment, intensify interunion disputes and make more difficult the maintenance of the old system of apprenticeship training.[1]

The second of the environmental factors which have influenced the trend of industrial relations in this industry is found in the nature of the building business. Unlike the great basic industries of the country, the construction industry is an open door for small producers to try their luck. The construction business usually requires little capital and many enter it with little managerial experience or skill. As a result, the building business is highly competitive and full of uncertainties. The weather, a

[1] The original sources describing the changes in construction methods and their effect on the workers in the industry are scattered through hundreds of technical and trade periodicals. Freyer, W. J., *A History of Real Estate, Building and Architecture in New York City in 1898* (New York, 1899), describes the development of building construction methods from colonial times to 1898 and indicates how the technical changes have affected the business of contracting. *Engineering News-Record*, April 17, 1924, reviews the technical progress in building between 1875 and 1924. Chapter VII of *Seasonal Operations in the Construction Industries*, Report and Recommendations of the Committee of the President's Conference on Unemployment, 1924, sums up the recent changes in the art of building and their influence on the labor problems, particularly unemployment in the various trades. *The Bricklayer and Mason*, March, 1904, p. 8, January, 1907, and April, 1909, suggests how the bricklayers have been affected by new building methods. *The Carpenter*, November, 1904, and June, 1908, indicates how this trade has been influenced by changes in construction materials. Barnett, G. E., *Machinery and Labor*, 1928, Chapter II, deals with the effect of stone-cutting machinery on the stone-cutter.

business depression, price fluctuations, high interest rates, a labor strike — these may at any time throw it into confusion.

Nor are the personnel policies which employers in other industries adopt in order to win the good will and loyalty of their workers applicable in the building trades. Contracting differs from other industries in the character of its management and in its localized nature. The labor force of a housed industry is there for a relatively permanent term of employment. The labor employed by a contractor is there until it completes the particular work of that trade, when it leaves for another job, or for another employer on a different project. The permanent skeleton force maintained by the large contracting firms is only a small percentage of the total labor force which they employ during the building season.[2] There is, therefore, no opportunity to build up any degree of loyalty among these migratory workers. Their interests are not tied up with one contractor.

Nor are the contractors in a position to organize effectively to control their problems. The average building contractor does not use cost accounting in his calculations. Rule-of-thumb methods characterize his every operation and, barring the more efficient construction organizations, every trade in the building industry is still swamped with a host of contractors who lack modern methods and appliances, estimate on the basis of guesswork and generally have not been affected by the scientific progress which has revolutionized the construction processes of the more efficient contractors. While to the ordinary observer these drawbacks do not directly affect industrial relations, the fact remains that many of the "cumulative irritations that go to make up the large aggregate of industrial unrest hark back to inefficiency in the mechanical processes under which work is done."

Particularly significant is the position of the owner. He is not directly interested in any theory of labor relations; the employment of labor is incidental to his business. His aim is to "get out from under," to have the building completed in time for the customary "leasing dates." If that can be done more

[2] Boyd, D. K., "Seasonal Employment in Building Construction," *Engineering News-Record*, January 11, 1923, p. 63.

expeditiously under the closed shop, he has no objection to it. If a refusal to grant the demand of the union might delay the completion of his project, he opposes such a refusal. He builds only once in a lifetime, and is, therefore, unwilling to have his building a battleground for the determination of principles of industrial relations. This situation is thoroughly appreciated by contractors and explains in part their ready submission to union demands. This submission is also encouraged by the "cost-plus" basis on which the industry largely operates. This mode of operation removes from the contractor direct penalty for inefficiency and weakens his resistance to uneconomic practices, whether these result from his own incompetence or are imposed by the unions.[3]

It is this industrial setting — the economic environment — which must be kept in mind in reviewing the obstacles which have been in the way of stable industrial relations. These obstacles are six: jurisdictional disputes, seasonal unemployment, working rules, wage conflicts, business competition and weak organization of employers.

JURISDICTIONAL DISPUTES

Perhaps of primary importance among the disturbing factors are jurisdictional disputes — controversies between the unions themselves concerning their respective claims to certain classes of work. The importance of these contests cannot be overemphasized. Contractors have estimated that before 1919 about three fourths of all the strikes in the building trades were due to

[3] For a description of the problems produced by the competitive struggle in the industry, see Comstock, L. K., "Elimination of Waste in Estimating," *Bulletin No. 8, New York Building Congress*, 1924; for other causes of waste and inefficiency resulting from antiquated business methods, see Chapter V of *Waste in Industry*, Federated American Engineering Societies, 1921; for the possibilities of removing waste and discontent by better business methods, see *A Modern Building Organization*, by L. J. Horowitz, president of the Thompson Starrett Company; for a description of the nature of "bid peddling" and price-cutting resulting from excess competition and unsound financing practices, see *The American Contractor*, January 7, 1928, p. 18, January 14, 1928, p. 14; *Bulletin of the General Contractors Association of New York*, June, 1919, p. 100, and W. B. Joyce, "The Contract Bonding Reform," in the *Constructor*, September, 1924, p. 27.

disputes of this character.[4] Employers are only indirectly concerned in the causes of these squabbles, although they are vitally interested in their solution. The twilight zones — the lines of demarcation where the work of one trade ends and that of another begins — are clouded by the technical changes which are taking place in materials, in machinery, in processes of erection at so rapid a pace that it has been impossible to stabilize the claims of the several organizations in the industry. The disputes resulting in strikes have tied up building projects of major importance and frequently ruined the production schedules of contractors. A contest between the bricklayers' and plasterers' union in 1925 tied up nearly 250 million dollars of building from New York to Florida.[5]

Since this has been the most troublesome question in the industry, organized employers and workers have been giving this problem attention for several years. The methods adopted for its solution have been of a changing character. The local councils of building tradesmen have in many cities developed strong local arbitration systems and controlled the disputes effectively through drastic enforcement machinery. With the development of the national union the power of adjudication was assumed by the national officers — and long fruitless conferences failed to produce the needed relief. The decisions of the American Federation of Labor awarding the disputed work to one union or the other were unenforceable since the Federation's reliance on "moral suasion" failed to produce results. Finally the organization of the Building Trades Department in 1908 and its stormy history until 1919 again showed that decisions which could not be enforced against the strong unions failed to relieve the situation.

The most constructive step was taken in 1919, when the National Board for Jurisdictional Awards was organized. This

[4] See testimony of John Donlin, former president of the Building Trades Department, and of R. R. Marshall of the Associated General Contractors of America in *Report of the Select Committee on Reconstruction and Production* (Calder Report), Washington, D. C., 1921, V. I : 717, 1037.

[5] *The New York Times*, October 4, 1925, and *Address of James J. Davis to the National Board for Jurisdictional Awards*, Washington, D. C., October 18, 1925.

was an all-inclusive industrial organization of representatives of architects, engineers, contractors and labor organizations. It had broad powers; its personnel was of a high caliber and its method of operation such as to insure fairness in its decisions. Between 1919 and 1927 more than 100 important decisions affecting all the organizations in the industry were issued and most of these were accepted. It has been estimated that since 1919 about 75 per cent of the jurisdictional disputes have been eliminated chiefly through the efforts of the Board. But the largest union in the industry, the carpenters, with nearly 400,000 members successfully defied the Board's rulings for over eight years. And it was this opposition, as well as the question of political expediency on the part of other unions, which led to the repudiation of the Board of Awards by the Building Trades Department in 1927. At present all the decisions of the Board, except those affecting the carpenters, are accepted as binding on the unions in the industry.[6]

It appears certain that, as long as this issue remains unsettled, as long as contractors, owners and even workers have no assurance that agreements and wage scales will not be violated by interunion jurisdictional squabbles, stability in industrial relations is impossible. Irrespective of the justice of some claims, and disregarding for the moment the inevitability that such disputes will appear to no less extent in the future as a result of further improvements in mechanical processes and materials, the continued danger of stoppages is a liability for the industry which it must solve. A review of the adjusting machinery used in the past, from that of the local arbitration board to the Building Trades Department and the National Board for Jurisdictional Awards, emphasizes that the organization, composition and methods of these agencies are no longer the vital questions. Every

[6] *The Bricklayer, Mason and Plasterer*, April, 1927, December, 1927, p. 302, and February, 1928, p. 28. See also a report by John Donlin, president of the Building Trades Department, during the early history of the Board of Awards, entitled *A Review of the National Board for Jurisdictional Awards in the Building Trades. Its conception, formation, ratification, progress and impediments*, 1923; *Report of Proceedings, Building Trades Department*, 1922, p. 85; *Monthly Labor Review*, April, 1922, p. 126.

conceivable form of adjustment has been tried. Though some agencies were more successful than others, none of them has received sufficient recognition to solve this vexing problem. It appears, therefore, that the limiting factor is not to be found in the particular type of agency established. Other obstacles are present.

The solution of jurisdictional disputes, in the first place, requires the existence of some permanent adjudication machinery. The specific composition of the adjustment agency, so far as it includes representatives of employing and professional groups as well as labor, or labor only, is relatively unimportant. It is only imperative that all labor unions be represented. It appears that certain labor organizations opposed the recent Board of Awards on the score that the employers were only indirectly interested in these disputes, that they did not coöperate in enforcing the decisions, that they fomented disputes on account of wage differentials and that some of them through their association had been sponsoring the open shop.[7] However, it is doubtful whether these objections were fundamental and whether their absence would have made the Board more successful. Employers, architects and engineers would be willing to forfeit their right to be represented on such adjudicating boards if their absence would make a solution more assured.

In the second place, experience indicates that only adjudication machinery established on a national basis can function permanently and effectively. It is admitted that such national control over jurisdictional disputes will encounter opposition from strong local organizations which have been relatively successful in handling these disputes. Certainly, the international unions will give no support to any adjustment agency unless it is organized on a national basis. To overcome the opposition from strong localist centers, it might be necessary to make decisions applicable only to certain local zones, but this is not to eliminate the national character of the jurisdiction nor reduce the power of the national unions. The most definite lesson gleaned from experience during

[7] *Report of Proceedings, Building Trades Department*, 1922, pp. 85, 109, 126; 1923, p. 122.

more than a quarter of a century of jurisdictional adjustments, is that local claims and local customs have been disconcerting influences rather than stabilizing forces.[8]

Adjustment machinery is but one step in the right direction. The National Board of Jurisdictional Awards offered such machinery. The primary causes for its failure are found not so much in the particular issues which resulted in the repudiation of the Board as in the total absence, among certain labor unions and employing elements, of the spirit of coöperation so essential for successful adjudication. To be sure, the Board's decisions were in part responsible for this attitude of suspicion. But the Board's history and that of its predecessors indicate clearly that union leaders were unwilling to meet their antagonist half-way, to think in terms of the industry's welfare and to temper their own claims to the interest of the whole group. Unless a union's point of view is sufficiently tolerant and sufficiently broad to sacrifice temporary political gains, jurisdictional disputes will continue to be the most vexing problem to the industry and the greatest danger to the existence of unionism.

Finally, there is another aspect of this problem which is irritating to the employer and results in much dissatisfaction. Jurisdictional disputes must be clearly distinguished from jurisdictional rules. The elimination of strikes which result from the former is sought by the various adjustment agencies which have been established. Jurisdictional rules, however, do not come within the purview of the adjustment boards. These rules are not unimportant. Employers who are subjected to but few jurisdictional strikes are still troubled with the customary jurisdictional questions, and, though these are not permitted to reach the point

[8] For a discussion of the issues involved in the controversy between local and national control of jurisdictional disputes, see "Report of Testimony," *Commission on Industrial Relations*, Vol. 2, pp. 1583, 1601; also *Report of Proceedings, Building Trades Department*, 1909, p. 18. In 1913 the Building Trades Department definitely declared its opposition to local boards. It resolves "that we hereby condemn and declare null and void any and all decisions rendered by such boards of arbitration selected by local building trades councils and employers, unless such decisions are in conformity with the decisions rendered by the American Federation of Labor and the Building Trades Department." — *Report of Proceedings*, 1913, p. 121.

of open warfare, there is an infinity of rules delimiting the sphere of activity of each craft, seriously limiting the managerial scope of the employer, and rendering more costly the performance of work. Though to the employer the strike is the last straw in jurisdictional matters, in the long run, the strike is no more costly and unsound than the allocation of work on the basis of rival craft claims. What little has already been done to reduce friction resulting from these rules has come about through the combining of related trades.[9] Progress in this direction, however, has been very slow.

A broader point of view may eventually develop a program for the consolidation of trades into several basic groups. The shortcomings of amalgamation at the present time are so many that little can be hoped for in this direction for many years to come. But the development of an industrial point of view, as distinguished from the narrower craft standpoint, will undoubtedly prepare the ground for several beneficial consolidations of present conflicting groups and thereby reduce in the most effective manner the basic causes of jurisdictional conflict.

SEASONAL UNEMPLOYMENT

Second in importance among the disturbing factors is the seasonal character of the industry. On the basis of the available statistical information it is safe to assert that the average building trade worker loses annually about 25 per cent of the possible working time.[10] Intermittent employment intensifies the problem in industrial relations, particularly disputes concerning wages; it likewise exerts an important influence on the nature of the work-

[9] For the early efforts toward amalgamation of related trades, see *Report of Proceedings, Building Trades Department*, 1912, p. 85; for the progress which amalgamation has had in some trades and the benefits resulting therefrom, see *Fifty-seventh Report of the President and Secretary of the Bricklayers', Masons' and Plasterers' International Union of America*, 1928 p. xxxix.

[10] See *Report on Seasonal Labor in the Building Industry, Boston Building Congress*, 1923, p. 3; "Analysis and Recommendations concerning Seasonal Unemployment in the Building Trades of the Metropolitan District," *Bulletin No. 3 of the New York Building Congress*, July, 1922; *Survey of Seasonal Unemployment in Portland, Oregon*, Portland Building Congress, October, 1924; *Seasonal Operations in the Construction Industries*, Report and Recommendations of the Present Conference on Unemployment, 1924, p. 23.

ing rules which the union enforces, and on apprenticeship training and on jurisdictional disputes. As a result, construction has been carried on at 75 per cent efficiency and at a cost above what it would be if regularization in production and employment were achieved.

Only in recent years have the different groups in the industry begun to appreciate the havoc which seasonal construction has been playing with stable industrial relations. The first essential was to study the problem and to measure its nature and extent. The study showed, what industrial engineers have long known, that winter building was not so much impossible as unusual.[11] The approach provided an organized effort toward educating every group which came in contact with building construction of the real causes of seasonal unemployment in the past and the possibility of regularizing it. Although it is still too early to predict the outcome, the result already indicates that the continued functioning of the joint industrial agencies can put the building industry on a twelve-month basis. The limiting factors in the improvement of this situation appear to be the presence of numerous small contractors whose managerial efficiency and technical equipment are not adaptable to a winter-building program. The second limitation is the difficulty in educating the building public to the feasibility and advantages of winter construction.

Various organizations in the building industry are including in their activities this educational work to regularize employment throughout the year. With the success of such a program will come the opportunity to reëxamine the wage schedules and differentials existing in the various trades and to correlate wages with output. Stabilizing employment throughout the year will also react beneficially upon labor supply and apprenticeship training. Not only will it be simpler to attract more recruits to

[11] For the feasibility of winter construction, see "Construction Equipment Past and Present," *Engineering News-Record*, April 24, 1921, p. 745; May 1, 1924, p. 785; May 8, 1924, p. 828; May 22, 1924, p. 916; June 5, 1924, p. 994; July 10, 1924, p. 81; also Hill, C. S., "Winter Construction As the Contractor Regards It," a series of four articles, *Engineering News-Record*, October 2, 9, 16, 23, 1924.

the industry when needed, but the increasing usefulness and efficiency of the present working force will relieve the pressure for an additional labor supply during peak periods. Reducing the hazards of seasonal unemployment becomes a primary essential in any program of improving industrial relations.

WAGE DISPUTES

Largely resulting from seasonal unemployment, the wage conflicts in the building trades are next in importance as a cause of unstable industrial relations. Jurisdictional disputes are responsible for most trade strikes and stoppages, but conflicts over wages are a fruitful cause of general strikes affecting an entire market.

One of the most prolific causes of wage conflict is the prevalence of differentials in wages for different trades in the industry. These differentials are not based on extra competency, nor are they always a remuneration for special skill. In only a few cases do they represent extra hazard, and in a smaller number yet do they result from more irregular employment. In most instances the differentials were secured as a result of a special bargaining advantage, or through an alliance between several trades to maintain them. In many localities not only are they customary, but their existence is recognized in agreements, and changes in the hourly rates of important trades result in an automatic revision of rates for other trades in order to maintain the recognized differentials.[12]

Another characteristic of the wage question in several trades is the existence of bonuses. "Snow-balling" of wages is a common practice which often upsets the established wage scales. Its prevalence arises from the necessity of offering an incentive greater than the standard rate provided for in the agreement — an incentive made necessary by the strain on the labor supply during the summer months. A bonus practically changes the differentials in the various trades, creates a new bargaining base, and inevitably results in wage strikes in an effort to "write" the bonus into the recognized scale.

[12] See, for example, agreements of the painters, plasterers and bricklayers in Chicago.

The most serious difficulty caused by the wage disputes is the frequent disruption of adjustment machinery when agreements expire and demands are made to change the wage scale up or down. The 1921 struggle in Chicago, which lasted for more than eight years, the conflict in San Francisco in the same year which, according to many observers, is not yet over, and the struggle in Cleveland in 1921, are only three illustrations of occasions when the adjustment machinery has failed to function in a wage dispute. Incidentally these three cases involved demands by employers for wage decreases, to take account of changes in the cost of living, or for other reasons. Demands for wage increases in 1918 in the same cities also resulted in important strikes. In short, at crucial times, when the adjustment agencies are most needed, the agreements break down and strikes follow. What can be done to reduce the hazards of stoppages on this account?

Obviously, no one expects a "permanent" solution of wage disputes. It is doubtful if such a solution is desirable. Stability in wage rates is unthinkable either from the point of view of the worker or social progress. Changes in productivity, in the profitableness of the industry and in the bargaining power of the workers' organization, all ought to produce changes in real wages. Whether such revisions can be secured without a resort to direct action depends somewhat on the ability and willingness of both the workers and the employers to conciliate their differences or to abide by the verdict of arbitration. But, in many of the building trades, arbitration is somewhat distrusted, especially by the unions, and is used when one or both of the contestants is desirous of avoiding an open break. Consequently, wage rates are determined mainly by economic power and resort to arbitration is had only when direct action is not likely to secure results. The various devices perfected in several industries for correlating wages with changes in the cost of living, the productivity of the worker and the profitableness of the industry, have only a limited application in the building trades. The industry is not organized in such a manner as to permit correlation with any factor except perhaps changes in the cost of living.

No organized effort has been made to settle the question of

wage differentials. The 1920 agreement in New York City and the agreement in Chicago in 1918 and 1923 abolished the differential wage scale between trades and substituted a blanket wage agreement which classified the different trades into skilled, unskilled and semiskilled, providing a uniform wage for each trade in the group. Though this change had some salutary effects, it has since been abolished in the New York building trades. The present method in most unionized localities which is rather closely followed in unorganized cities, is to pay customary differentials to the different trades. But the frequency of disputes arising on this account points to the need of establishing the differentials on a sounder basis than exists at the present time.

The question of bonuses is one that does not easily lend itself to solution. Thus far only a few trades recognize it as a problem of importance, and pledge themselves to prevent the "snowballing" of wages.[13] It is doubtful, however, whether an agreement recognizing the evils prevalent in a practice of this sort will be of any value during the height of the building season. The problem is due to the maladjustment between the demand and supply of labor, and it can be solved only by extending the building season throughout the year. The supply of labor would then adjust itself, and the need for bonus payments of this sort would be eliminated.

Finally, the most pressing problem arises from the failure of the adjustment machinery to function at the crucial time in a wage dispute. The usual method of dealing with wage disputes is to submit them to arbitration. But on several important occasions arbitration awards have been disregarded. Generally unions hesitate to arbitrate a wage dispute and prefer to rely on their bargaining strength.

What is needed in the first place is a careful study of the unemployment problem. This is to determine in a scientific manner the relationship between the hourly rate and the yearly income of the worker. In the second place, a greater willingness is necessary on the part of both groups to recognize changes in the cost of

[13] For example, see *Agreement between Allied Building Metals Industries Association and the Housesmiths' Union 52*, New York, 1923.

living and to correlate them with wage rates. Undoubtedly a long-time agreement is of a great advantage to the employer and to the industry. The difficulty arises when sudden changes occur during the life of the agreement or when the agreement expires. If the habit of collective bargaining is well fixed and the strength of the contending factors is comparable, then failure to conclude an agreement may result in no interruption of work, but merely makes the eventual wage settlement retroactive. That occurred in New York City in 1922. Reliance on agreements and willingness to accept decisions of arbitrators are the results of a long process of education and effective leadership. The building trades workers and employers have not yet achieved this high standard of mutual confidence. Hope lies only in the development of joint arbitration machinery and in the education of the employee and employer membership of the industry to the necessity of respecting its decisions.

WORKING RULES

Probably no other issue received so much publicity as a cause of industrial disputes in this industry as the "barbed wire entanglements" known as the working rules of unions. To them have been attributed the high cost of building, the shortage of building mechanics, the opposition to the closed shop, and several costly strikes in various building centers.

To leave out of consideration for the moment the effect these rules have upon the initiative of management and the progress of the industry, they have been responsible only to a limited degree for unstable industrial relations. To reiterate, the major causes of interruptions of production in the important building centers since 1905 were not working rules but wages and interunion disputes. Rules of labor unions were an issue in the early stages of unionism in the building trades. Once recognition was secured, working rules assumed secondary importance as a direct cause of a strike. To be sure, where they are restrictive, they do not enhance the cordial relations between the unions and employers, but in few instances were they responsible for severing joint relations.

This is not true, however, of the open shop centers where the dominant issue is still the right of the employer to control his own establishment. Union rules are a recognition that this right is not absolute. But for unionized communities generally, working rules — control over the job, the right to hire and fire, working conditions, and the like, — have not entered extensively into the causes for unstable industrial relations.[14]

But to achieve stabilization on the basis of costly working rules which impede the technical and managerial progress of the industry is as undesirable as to stabilize an industry on the basis of low wages and exploitation of labor. Though the working rules and trade practices enforced in the building trades equalized the competitive struggle, stabilized conditions under which all employers operate, and protected the bargaining position of the workers, they have nevertheless introduced practices of a wasteful character, enforced regulations which restrict the individual output of the worker, restricted the introduction of labor-saving devices, limited the power of management to introduce changes in methods which would result in increasing the efficiency of the industry, and retarded production by maintaining uneconomic jurisdictional classifications.

The question then arises: What can be done to reduce the harmful effect of these rules upon the progress of the industry? Is it possible to retain the regulatory character of the desirable working rules and to eliminate those which are essentially restrictive?

To these questions it may be answered that restrictive rules cannot be eliminated if the conditions which brought them into existence are not removed first. It is obvious that unless the industry can regularize employment, any effort to remove the rules which result in limiting output is bound to fail. Similarly, the excess training of apprentices and the employment of pace

[14] The general strikes in the building markets of Chicago, New York and Cleveland since 1903 have been caused by disputes concerning wages. The stoppages in Chicago in 1918 and 1921 both resulted from a threatened wage reduction. Only in San Francisco can it be said that the one-sided determination of working rules created the situation which led to the general strike in 1921.

setters in production, practices frequently found in the building trades, produce the arbitrary restrictions on the part of the workers. The industry is highly decentralized. In many trades and localities the general contractors and subcontractors are "labor-brokers"; labor is often the only cost of the subcontractor and profits are not infrequently proportional to labor cost. As a result, the rules of the union are protective devices to prevent highly competitive forces from endangering the standard rate of pay and other "union conditions." Many of the regulations enforced at present or in the past are closely related to objectionable conditions found in the industry, and the removal of these conditions is the first essential toward a sane approach to this vexing problem.

But stabilizing the conditions in the industry in order to secure greater tenure of job and to protect the worker against the hazard of bearing all the costs of industrial changes is a difficult task. Unfortunately, thus far, contractors have shown little zeal to control these unstable elements in the industry. To many contractors it is still a question whether stabilized employment, fewer restrictive rules and higher individual efficiency are better than uncertainty of employment, restrictive rules and lower efficiency. Certainly, the contractors' hesitation or unwillingness to organize in order to control the worst features of a one-sided determination of working rules is only one indication that most of them are indifferent to the problem. Many still prefer to pay "hold-up" rather than association dues.

Obviously, to temper the power of the labor unions in order to introduce the bargaining process into collective agreements calls for the more effective organization of contractors. This will produce that "respect tinged with apprehension" which the New York employers discovered to be the first essential to stable industrial relations. But organization of contractors is only the first step — fortunately already in process. The present attitude of the building trades unions is still largely obstructive. They are still concerned with defending the elementary conditions of the job. The psychology developed in the process is defensive rather than constructive.

Where many years of "recognition" have assured the unions of a definite status in the industry, the combative features have been somewhat relaxed. Direct action has largely been replaced by judicial machinery. But the union is still merely an "instrument of protection and conservation." The method is still that of a policeman, a vigilance committee on the lookout for violations of agreed standards. As a result, the subject-matter of collective bargaining is strictly circumscribed. The function of managing and working is definitely divided. This division, the result of many years' development, restricts the worker's interest in the job to getting all he can and forces upon him the psychology of giving as little as possible. This point of view is a direct outgrowth of the conditions prevalent in the industry, chronic unemployment, cut-throat competition and rapid changes in methods of production which reduces the bargaining power of the worker's skill. His response is to restrict output and nurse the job along, to check changes in management and methods, and to barricade the job with protective weapons tending to make it more secure.

Experience in other industries and in several trades in the building industry [15] has already shown that the unions can themselves contribute much to the development of constructive agencies for joint coöperation; to handle questions of labor supply, labor turnover, apprenticeship, craftsmanship, safety, public relations, efficiency and improvements in methods to reduce economic waste. That disputes concerning these questions are a constant source of irritation has already been shown. That one side alone cannot arrive at a solution is evidenced by the interdependence of modern industry which makes joint coöperation indispensable. For example, much of the controversy concerning the extent of restriction of output is based on ignorance of what a "fair day's work" is in terms of physical output. Only in isolated instances have standards of output been determined as part of the collective organization procedure.

There are many limitations to the development of such a

[15] For example, the "B. & O. Plan" in the railroad industry, and, with a more limited function, the Council on Industrial Relations for the electrical construction industry.

program. The psychology of warfare is too deeply ingrained to be eliminated in a short time. Nor is the employing personnel of the industry possessed of that industrial statesmanship necessary for so far-reaching a change. One thing is certain — progress in stabilizing industrial relations will be slow until the negative purpose for protection shall be translated into positive action for industrial coöperation.

THE CLOSED SHOP

Next to working rules the contest over the open- and closed-shop issue has been a serious obstacle to more cordial relations. By the unions in the building industry the closed shop is considered as an absolute essential to their very existence, and it also has many proponents among the employers in several unionized building trades centers. The employer's support is based upon the belief that some enforcement agency is essential to equalize competitive conditions at least so far as they concern wages, hours and working conditions. The function of the union in this respect is to police the job, and to penalize those who, by paying less in wages or working longer hours, threaten to undermine competitive conditions. The stabilized employers who are equally endangered by the operations of the small unorganized contractors, have willingly accepted the union as a policeman and profited by its operations. Therefore, occasional opposition to the closed shop from unionized cities arises not from a desire to destroy the union monopoly, but rather to correct a particular abuse prevalent at the time. The history of industrial relations in New York, Chicago and San Francisco supports this interpretation. In the first two cities the open shop was rejected by the contractors on more than one occasion, and in San Francisco rather drastic means were necessary to cajole the employers into accepting the American Plan.

The acceptance of the closed shop by many building trades employers results from their experience that the introduction of the open shop has meant a constant fight against the union labor organizations. This task has not been an easy one. But more difficult has been the maintenance of the open shop after victory

is attained. At the same time many employers contend that, in such a contest, a victory for labor has made the unions more cunning and skilful and has even increased their aggressiveness. The closed-shop employer conceives the solution to be not in establishing the open shop and giving full rein in the competition for labor, thus making more uncertain the labor cost in the industry, but rather in an internal house-cleaning of the union, eliminating from leadership the unscrupulous element which at times dominates building-trades affairs.

However, not all localities have accepted this solution. Some large cities, and most smaller centers, still contest union control. The arguments for such resistance and the issues at stake are concerned primarily with the fear of the employer that the closed shop will deprive him of the right to run his own establishments; that a complete union monopoly of the labor supply will interfere with the detailed job processes and make the task of efficient management more difficult. Obviously, stabilization of industrial relations must, therefore, be considered only with regard to particular cities where joint relations have already been established.

For these and for many open-shop cities better relations must await a shift in the union's point of view. That they can in many instances relax their demand for a monopoly is undoubtedly true. It is well known that some union officials in this and other industries see in the open shop a better opportunity to "sell" unionism, on the basis of the services it performs. To these a partly unorganized industry presents a constant challenge to improve conditions and extend the organization, and out of this contest comes the material for a healthy organizational development. But in the building trades this point of view must await not only an attitude of employers more favorable to tolerance and to dealing with labor organizations but also an improvement in the competitive struggle in the industry, which makes unorganized labor bear the burden of wasteful practices.

THE UNORGANIZED EMPLOYER

The limiting factor to stable industrial relations at the present time is found in the lamentably disorganized condition of em-

ployers. Notwithstanding the significant progress already made in the large cities in uniting the building contractors, the vast majority have not yet been converted to the necessity of group organization. In the building industry, probably more than elsewhere, the small non-federated employer is an obstacle to any scheme seeking to improve the organization of the industry. Not only is his problem neglected, but frequently abuses which occur on the side of the unions are due, in part at least, to the absence of organization on his side. The movement toward organization is progressing at a slow rate; the diversity of interests in the different groups of contractors and the total absence of "class consciousness" among them give rise to dissensions at a time when unity is needed most. Only in recent years have building employers been educated to the value of group organizations.[16] A greater degree of solidarity is, however, still necessary before substantial progress will be possible.

The ignorance and provincialism of many contractors is a drawback of no small significance. Further, the building-trades employer has no deep interest in industrial relations and coöperation with other groups is difficult to secure because there is no common bond to act as a cement between them. Costs are of no interest to them so long as they can be reasonably predetermined. All that the employer wants to be assured of in the last analysis is that his competitors are working under the same conditions he is forced to observe. Further progress must await a change in the point of view of contractors and an increase in the effectiveness of their organization. But to assume that the meeting of opposing forces well organized and ably led will eliminate disagreement and warfare is to overlook many important factors. Such meetings in the arena of negotiation have not yet lost their resemblance to a battle line. But it is not inevitable that the greatest measure of accomplishment should be attained by way of violent conflict. "The severest clash of divergent interest may

[16] For difficulties which have been encountered in organizing building trades employers, see *Report of Proceedings, National Association of Builders*, 1889, p. 13; *Bulletin, Associated General Contractors of America*, February, 1920, p. 2, February, 1921, p. 2; and *Bulletin, Cleveland Building Trades Employers Association*, September 23, 1925.

take place as people sit around the table and discuss matters with facts and figures in their hands and not with their hands clenched in a fist." This kind of fighting makes for better understanding of the industry's problems and avoids physical conflict only in proportion as both sides are effectively organized.

While the workers in the building trades have solved their problem of organization to a greater degree than the employers, improvements in union policies can also aid in stabilizing the industry. The elimination of interunion disputes is an important improvement already discussed. The abuses resulting from the indiscriminate use of sympathetic strikes can be curbed, after the conditions making their use necessary have been removed. This will greatly reduce the number of stoppages in the industry. Similarly, radical improvements can be made in the leadership of some building-trade unions, particularly in the local groups. The factors inherent in the building business have made the undesirable type of leadership possible. Technological developments have not threatened craft unionism in this field as they have in numerous other lines such as the metal trades. As a result the greatest stimulus to a constructive outlook by officials of the building-trades unions has been eliminated. An improvement in the type of leadership is necessary, not only to remove the more unwholesome practices prevailing in many localities, but also to foster a broader point of view in regard to industrial relations. The increasing influence of national officers over local affairs promises to standardize conditions and practices and to exert a more enlightened influence over the local unions.

DANGERS OF PRODUCERS' CONTROL

It might be objected, however, that a more complete organization of the several groups operating in the industry will not in itself solve the problem. For in one respect, at least, the experience of collective bargaining has been emphatic. The chief parties at interest, labor and the contractors, have frequently engaged in practices which were not only costly from the public point of view, but unethical as well. Left to themselves, they have maintained exclusive agreements, enforced uneconomic

practices and unduly restricted competition. While the sort of stabilization they have achieved has served the selfish interests of the groups involved, it has not been to the benefit of consumers generally and to the building owner and rent payer in particular.

This situation, which many believe to be irremovable from this industry, has brought forth the suggestion that only the presence of a "third party," a private or public agency not directly interested in the building business, would remove from the industry antisocial practices which now prevail. The function of such a body would be to supervise the relations between the unions and employers to the end of placing these upon a higher ethical plane and injecting the public interest in the industry's affairs.

How far a public body composed of men who are not an integral part of the building industry can influence conditions in the industry is a debatable question. The experience of the Citizens Committee to enforce the Landis Award in Chicago from 1921 to 1927, and of the Industrial Association of San Francisco since 1921, offers only an incomplete answer to this question. In the former case, though many practices of an unwholesome character have been removed from the industry, the contractors, who had sufficient reason to be grateful for the Committee's activities, repudiated its program and entered into agreements with the unions which contained provisions opposed by the Committee. In the latter case, the reforms in the industry's practices and methods have been secured only with the removal of the labor unions as an effective power in influencing the working conditions in the industry. In both instances the "third party" has embarked on a program which antagonized the unions and many of the contractors and thereby removed the possibility of securing coöperation among the parties directly involved.

To be successful, intervention in the affairs of the building industry must take into account the experience of efforts already indicated. Probably the biggest liability of any agency seeking to reform the methods in the industry lies in its assuming an anti-union character. Equally important is the danger of stripping the parties directly interested of any control over industry's

affairs and transferring such power to a "Citizens Committee," whose presence in the industry is at best of short duration. In the last analysis it is not possible forever to deprive the contractors and workers of the right to determine the conditions under which they will operate. To attempt to do so, even temporarily, is to incur their opposition and to provide an incentive for a return to the old methods of collusive dealings. It is obvious, therefore, that while producer control might be costly to the consumer, to transfer such control over the industry's welfare to a party only indirectly interested is to invite conditions likely to be more costly. An examination of the competitive and technical structure of this industry reveals that "no agreement will insure continuity of production in the future which fails to provide a continuing joint agency which will concern itself not so much with the adjustment of grievances as with the constructive consideration of the underlying economic and technical facts by which all questions of wages, working conditions and earnings must in the end be determined."

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THE EVOLUTION OF THE COMMUNITY

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THE fact that man lives, not as an isolated being, but in relationship with others in various types of community groupings, is accepted as a commonplace. Reappraisal of ethnology, history, philosophy and psychology have all pointed to the importance for the social sciences of the understanding of the individual's life as it was actually lived in the midst of others.[1] Increasing attention has been directed to studies of typical communities of both the present and the past, even those of prehistoric times. An evolutionary trend in community life is discernible throughout the ages as we trace certain common features in their different settings. In primitive life the technique of supplying life's vital needs for the individual coincided with the group to which he belonged. The limits of the community in which he lived largely marked the outer boundaries of the individual's interest. As the scale of culture arose, the individual was increasingly freed from such complete dependence upon his immediate group. In some cultures the pendulum has swung so far as to result in too great isolation, or at least spiritual remoteness from his fellows. It is in part due to the conscious effort to re-create community life that such studies as this in community organization are undertaken.

The object in this paper is to outline some of the noteworthy features of those community types antecedent to the modern American community. Even in the short period of American life, great changes in community types have taken place. When one considers the roots of early Anglo-Saxon life, and the diverging types that have emerged, one can readily see how an analysis of

[1] Gumplowicz, L., *The Outlines of Sociology*, translated by Moore, F. W. (Philadelphia, 1899), Chapter 1.

the likenesses and the differences that persist aids him in a better understanding of our community heritage.

THE COMMUNITY THE UNIT OF SOCIALIZATION

As far back as early Anglo-Saxon life can be reconstructed, the village community was the main unit of socialization.[2] Social control, the exercise of justice, the creation of loyalties and the preserving and respecting of group *mores* lay within its scope. Colonial life in America began largely on this basis; the new settlements which were authorized by the various charters were community enterprises. Naturally, modifications of the European type resulted from the impact of New World conditions. In both America and the Old World there has been a gradual specialization of functions formerly belonging to the community as a unit. Important as is his community to the modern individual, it cannot be called as distinct a unit of socialization as was the earlier type. The control of the school, the church, the political unit, the industrial interests are no longer necessarily limited to a specific community.[3]

MUTUAL DEPENDENCE AND COÖPERATION

Mutual dependence and coöperation have been and will remain obvious traits of the community. In primitive times needs were so simple that a rather restricted division of labor within a small unit rendered the village quite self-sufficient. Coöperation was also promoted by the attitude of fear and distrust toward aliens or outsiders. Fortifications, traced back by students to the Neolithic peoples, are mute evidence of the commonly constructed measures of defense for a community sensing a common need. The medieval village, chiefly agricultural in its type, afforded many points of common interest and action.[4] Large strips of pasture land were usually held in common; the church, the mill

[2] Maine, H., *Village Communities in the East and West* (New York, 1871); Seebohm, F., *The English Village Community* (New York, 1883).

[3] MacIver, R. M., *The Community* (New York, 1924), pp. 231–244; Kropotkin, P., *Mutual Aid* (New York, 1902), p. 130.

[4] Monroe, D. C., *The Middle Ages* (New York, 1921), p. 341; Pirrenne, H., *Medieval Cities* (Princeton University Press, 1925), pp. 56–57.

and the court were common centers of community life. A mutual dependence characterized the relation of feudal lord and his followers.

The village in American life represented quite noticeably the European medieval type, and maintained it until a much later date. "It was the capital example of the medieval tradition."[5] The common control was, in fact, one of the most democratic of all times. Such centers of community life as a school, church, town hall, poor relief and common pastures flourished. A type of mutual coöperation prevailed by which land transfers, crop relations, pasturage rights, and the admittance of the new-comer were all questions for public discussion and settlement.[6]

With the growing complexity of modern life and its multiplied needs, the community as well as the individual is increasingly incapable of self-sufficient action. Though the face-to-face contacts of those mutually dependent may no longer exist, participation in some forms of community action is well-nigh inescapable. The invading enemy may be flame or germ, rather than hostile tribe, but their encroachments can be met only by united action for fire protection or a safe water supply. The community unit is less sharply defined than in a simpler civilization, and though the individual may be less dependent upon his immediate environment and associates, he is not more capable of self-sufficient action.

COMMUNITY SOLIDARITY

Closely allied to the mutual dependence and coöperation that existed within the limits of the village was a keen sense of community solidarity. When in contact with outside and competing groups, a deep-seated bond of unity among the members of the village or town was evidenced. In primitive life its most vivid form was in those communities where the blood-tie was strongest. By a gradual extension of this binding force through

[5] Mumford, L., *Sticks and Stones* (New York, 1924), p. 13.

[6] See *Johns Hopkins Studies in History and Political Science* (Series I–IV. Johns Hopkins University) for an extended treatment of the early American village. See also Greene, E. B., *The Foundations of American Nationality* (New York, 1922), pp. 108–109.

frequent intermixtures due to adoptions and exogamy, the clan came to represent more than a mere blood-group.[7] This solidarity was a mark of the confederacy as well as of the single community, and in both types was a potent source of social control. A strong sense of mutual responsibility for the keeping of the *mores* of the community was cultivated. The youth was trained to accommodate himself to these accepted standards of action. Since individual action was subject to group ideals, the group oneness generated much of the social control. We have seen how manorial life furnished somewhat the same background for group solidarity, and was in turn transferred to American village life.[8]

In America, the pronounced individualism of the rural life has tended to dim community consciousness. The enticement of free land in apparently unlimited extent gave us the unusual phenomenon of farms isolated and strung out over large reaches of territory. "There is practically no open country life as isolated as in this country."[9] The more energetic individuals whose daring had brought them to the New World showed renewed initiative in pushing into pioneer fields, and instilled their spirit into their children.[10] The isolation certainly has militated against a community consciousness. "Zeal for securing approval and for coöperation through awareness that others also are laboring for the good of the community is less intense than in the city."[11] The constant loss of leadership from the rural life, explained by the attractiveness of city life, both in its social and economic phases, has a marked influence on community life. The more recent depression of rural economic life has accentuated this drift. Recent developments such as agricultural extension work, schools of agriculture, better transportation and communication, the formation of centers for rural groups, the increasing political

[7] Tozzer, A. M., *Social Origins and Social Continuities* (New York, 1925), pp. 184–187; Botsford, G. W., *Hellenic History* (New York, 1922), p. 70.

[8] See pp. 198–199.

[9] Bailey, W. L., "The Village," *Encyclopedia Americana*, 1920.

[10] Williams, J. M., *The Expansion of Rural Life* (New York, 1926), pp. 10–11.

[11] Allport, F. L., *Social Psychology* (New York, 1924), p. 382.

power of the farmer, are all forces that are beginning to leave lasting impressions on rural community solidarity.

Within more recent decades, the growth of larger towns and cities in America has been a second large contributing force to the lack of community solidarity. The ease with which numbers change their place of residence and the resulting temporariness of abode break down the social control which formerly emanated from the group.[12] The impersonality of relationships where there is geographical with no corresponding social contact destroys community consciousness. "The instability of modern life has as one of its principal causes the growth of vast secondary groups, like the city, whose control we, as yet, only imperfectly understand."[13] The unwieldiness of the big city leads to the use of minutely specialized agencies for performing all the functions formerly inherent in the community unit. Facilities may be provided for recreation, the system of courts and police may maintain order, ecclesiastical groups care for religious interests, educators train the young, laborers produce and tradesmen place on the market. All the isolated needs of the individual may be met in a way incomparably better than a simpler culture afforded. The problem which the city faces is so to organize its different units that its members can sense a oneness in their lives, can "see life steadily and see it whole." As it exists, the city offers circles which differ immensely in their standards of right and of excellence. Correlation and syntheses may be the method of attaining solidarity; the spiritualization of its citizens would be the result.

SIZE OF POPULATION GROUPS

It is a suggestive fact, as we try to conjure the unknown millions of the world's successive generations, that the vast majority of them have lived their hour within the scope of some type of village life. "For a great part of mankind, even today, the village is the most real community, and during earlier epochs

[12] See Park, R., *The City* (Chicago, 1926), for a vital treatment of this drift.

[13] Ellwood, C. A., *The Psychology of Human Society* (New York, 1925), p. 137.

of history, as the Middle Ages, the usual and indeed almost universal community life was found in the isolated rural village."[14] The differences between the ancient and the medieval periods in community organization are not nearly so marked as between the medieval and the modern. "Except for the wealthy Italian city-states and a few other cities which traced their history back to Roman times, most European towns, it must be remembered, dated only from the later middle ages."[15] Even the ancient city did not differ so widely from the spirit of the primitive and the medieval village as does the modern city from its direct predecessor.

A contrast between medieval village and town will throw light upon this statement. The village was agricultural and the town usually built around some other phase of life, be it trading center, fording place, or place of worship. The distinguishing feature of a city, as the term was then used, was the fact of its being the residence of a bishop. The population of the two hundred towns existent in Britain during the thirteenth century averaged about two thousand five hundred, whereas the villages had only about three hundred.[16] The latter were naturally much more stable and homogeneous as the legal tie to the manorial estate was a serious barrier to much migration. In the towns citizenship was gained solely by land or house ownership, but as the life rested chiefly upon a trade basis the necessary associations between towns promoted a more mixed grouping. Besides the citizens there were always numbers of aliens, such as Jews, fugitives, wandering villeins and various types of adventurers.

ECONOMIC FACTOR IN COMMUNITY LIFE

The economic factor has existed and still persists as a decisive factor in community life. In primitive life, while other impulses

[14] Beach, W. G., *Introduction to Sociology and Social Problems* (New York, 1925), p. 6.

[15] Hayes, C. J. H., *Political and Social History of Europe* (New York, 1924), 1 : 36.

[16] E. P. Cheyney gives an excellent treatment of this entire subject in the opening chapters of *An Introduction to the Industrial and Social History of England* (New York, 1920).

were present, the economic was the controlling force in village relationships. Methods of control that were interfamilial and communal tended to supplement the patriarchal blood-right and kinship base of action because of the gradually arising need of some form of coöperative action to safeguard possessions. Tillage and pasturage rights were to be protected, and guardianship maintained over other forms of property.[17]

In principle, the feudal system which obtained during the medieval ages was based upon an exchange of commodities. The feudal lord gave military protection in exchange for agricultural labor and military service. The pressure that was exerted to break down feudalism was largely generated by economic dissatisfaction. Mere mention can be made of two outstanding events.[18] When the Black Plague decimated the labor market, the subsequent demands of the surviving laborers were for greater freedom of economic action. Wat Tyler's rebellion voiced the restlessness of the peasants against irksome burdens levied during earlier periods. And the transition from the "open fields" system that prevailed largely in England even as late as the last half of the eighteenth century to the system of inclosures was stimulated by the economic demand for greater profits in agricultural produce.

In the development of the guild town the force which economic influences may exert on a community was clearly felt. The guild controlled the trade of the town, reduced local competition to a minimum and fostered coöperation. It had its distinctive social interests, plays, rendezvous for recreation, control of much public conduct, charitable aids and frequently possessed its own chapels. The polity of the town was more self-directed than that of the village, and possessed a greater sense of freedom and initiative. Town councils were in vogue in increasing force, so that in the thirteenth century the common town council was the representative of a self-governing people. Of the many community activities that centered in the guild hall, town hall, church and market,

[17] Todd, A. J., *The Primitive Family as an Educational Agency* (New York, 1913), p. 57.

[18] Toynbee, Arnold, *The Industrial Revolution of the Eighteenth Century in England*, 6th edition (London, 1902).

economic considerations ranked high. The mill and the town pasture were owned in common. Money was distributed from a common guild chest to the needy. There were public control of weights and measures and common surveillance of "victuals." In some places the magistrates made a common bargain and provided for the storing of grain to meet seasons of scarcity. "The whole tendency of medieval society was toward organization, combination, close union with one's fellow."[19]

In a large measure it was the town economy that helped to usher in the modern era. The closing period of the Middle Ages showed many signs of transition in community life, more and more merging into the modern type. Town life grew rapidly, bringing greater interdependence and municipal differentiation. "Towns, trade and industry thus worked together. By the sixteenth century the towns had grown out of their infancy and were maintaining a great measure of political and economic freedom."[20] With the breakdown of the manorial system came a marked tendency toward nationalization. To be sure, certain universal forces were shaping these changes. The advancement of science made possible the introduction of machinery, the impetus of adventure and exploration opened a new world, and the religious reformation and the Renaissance wrought hand in hand with the Industrial Revolution.[21]

In America, as in the Old World, the impact of the new life upon the old has resulted in consequences both good and bad. The crowding together of people in large towns and cities, the rapid increase of renting and tenantry, the creation of more impersonal relationships between people have substituted vague and abstract factors in community life for the old concrete and simple forms.[22] The extremes in social and economic standing have been accentuated, and common centers of community recreation and interest have been swept away.

[19] Cheyney, *op. cit.*, p. 61.

[20] Hayes, *op. cit.*, 1 : 37.

[21] Parsons, P. A., *An Introduction to Modern Social Problems* (New York, 1924), p. 107.

[22] See Veblen, *Thorstein, the Instinct of Workmanship* (New York, 1914).

INTERCOMMUNITY RELATIONSHIPS

Another striking contrast between earlier community life and our modern civilization is in the matter of relationships to other communities. The barriers of suspicion and fear that separated primitive groups from one another have been pushed back, farther and farther, and ties of mutual coöperation and dependence extended. We have emphasized the tremendous part industrial development played in producing different types of community. So long as the economy was a simple one, and each small unit largely self-sufficient, intercommunity relations were relatively unimportant. In Greece, for example, we find some kinship to the regional type, so far as the city-state existed. The city itself formed a nucleus around which was woven, not so much geographically, socially or industrially, as politically, the city-state idea. The different cities, however, were generally hostile to one another. Community life was quite self-centered, a condition explained by such factors as poor roads, prevalence of robbers, almost impassable tariff barriers, suspicion toward the foreigners and the lack of any intense division of labor. Unions were made, of course, under the compulsion of some common need, such as defense against a common enemy, but this was not the typical attitude.[23] In medieval days, also, a lack of closely knit interdependence was lacking. The craftsmen within the village made it possible to live in a notable state of isolation.[24] This geographic and economic isolation accounted for the stagnancy of much of the life of that period; variations were lacking upon which new integrations of community action might be built.[25] The village fairs became one of the most powerful sources of social diffusion. People came to them from the neighboring villages, and the fairs, often held as quarterly functions, tended to break down the traditional seclusion of the village life. As to the towns, communication was largely governed by guild needs and agencies.

[23] Bryce, James, *Modern Democracies* (London, 1921), 1 : 28–30; Botsford, *op. cit.*, pp. 77–78.

[24] Cheyney, *op. cit.*, p. 46.

[25] Todd, A. J., *Theories of Social Progress* (New York, 1919), p. 310.

The desire to attract buyers created a strong community pride and such prestige, built upon an economic and social foundation, was the objective of much of the common organization. Trade was intermunicipal, rather than individual; town became distinctly associated with certain business standards.

With the supplanting of the handicraft system by the introduction of machinery, the modern era of interdependence of communities received its great impetus. In America, the passing of the medieval type of earlier days and the dominance of huge industrial centers around which constellations of satellites gather, are phenomena familiar to all students of her population groupings.

CHANGES IN SOCIAL CONDITION

Gumplowicz, in his conflict theory, pictures the evolution of society as the result of a continuous struggle between the "have's" and the "have-not's."[26] Throughout the struggle equilibrium is maintained in the social structure by a constant shifting of the seats of power, and change in social stratifications. The existence of castes or classes remains a constant fact today as in earlier times and contrast exists only in the forms manifested. It is not necessary to treat of the various social theories which explain the formation of ruling classes. Many evidences remain, however, of democratic control within the primitive community, though various qualifying elements oppose too ready belief in ideal ancient democracy. Patriarchal control long pervaded many of the cultures, especially in those groups where family ties were closely knit. The infiltration of other cultures would tend to change gradually this form of leadership to others, probably based upon personality more than descent.

In very few instances was the control of the ancient village so unified and massed as to be called communistic. In certain phases life was distinctly communal, and stratifications were not as marked as they became later, although some degree of individual ownership was always present, which, undoubtedly, called for private decisions. Yet the ownership of much property by the group made a basis for common control. The power of

[26] Gumplowicz, *op. cit.*, p. 111.

the assembly was quite marked, making due allowance for the strength of leadership and personality which crystallized in the rôle of chieftain, headman, etc. The vote of common assemblage decided such matters as the type of crops, the areas and assignments of land to be put under cultivation, and the processes of order and control. Of course, it is very obvious that the form of village control varied greatly with the types of culture comprising them.

In the statements already made concerning the manorial life rights of the Middle Ages, the fact of definite social stratifications has been clearly implied. The *Domesday Book* in 1086, which was a Norman survey of Britain, gives the following social divisions which we may accept as typical of the entire village life: the lord, who was the landholder; the freeman, who had legal freedom from manorial ownership; the sokeman, who was a tenant of the manor, and who stood midway between the freeman and the villein; the villein, who was also a tenant definitely bound to the oversight of the lord; the cottar, who was still more menial, having possession of but small acreage, and quite often subservient to the villein as well as to the lord; the lowest in the scale, the serf, who might even be sold to his master, although the prerogative was not commonly exercised in direct ways.[27]

It is easy to understand the social prestige that would naturally accrue to the lord who so dominated the economic life, and could so limit the freedom of action of his dependents. However, although legal subservience was recognized, the control was not so drastic as the law records would lead us to believe. The social customs gave the villeins certain liberties and in some instances massed power; and even in the matter of economic subservience, the villein increasingly came to be considered a strong factor in the control of the village. Villeinage was not actual slavery.[28] Much confusion has arisen because of our tendency to rely less upon the analysis of case records, such as the village studies of Gomme and others than upon the legal history of the time.[29]

[27] Gomme, G. L., *Village Community* (New York, 1890); also, Bland, Brown and Tawney, *English Economic History* (London, 1914).

[28] Cheyney, *op. cit.*, p. 40.

[29] Cf. Ballard, A., *The Domesday Inquest* (London, 1923 ed.) Chap. 15.

Although the degree of subservience to the feudal lord varied, the differences between the village classes were more economic than social. People living in such closeness of association, with very few outside interests, had many opportunities to meet on a common basis. The social life of the village tended to weld cultures. Community recreation abounded, notwithstanding the ruggedness of much of the toil of that day.[30] Sundays and holy days were observed very strictly as holidays. In most sections of the country there were about eight weeks of holiday a year. The church held a place of recreational as well as religious leadership. The church yard was the scene of much of the community festivity and gathering. Feasts were regularly held in which the entire village participated; the holding of church ales and dances evidenced the fact that the partition between the secular and sacred was not as emphatically established as it came to be later. Monasteries and other agencies of the church were the centers of charitable relief as well as of hospitality for the stranger. The village fairs mentioned above were popular means of community social life, increasing rapidly in number, until in the fourteenth century there were over six thousand held. Military functions, tournaments, plays, pageantry, minstrelsy, feasts, all contributed to the community life.

The guild towns that existed under the handicraft régime likewise possessed the common nature of social and recreational as well as economic interests. An additional feature of the guild town somewhat suggestive of modern conditions was the tendency to divide the community into sections, even at the expense of the community consciousness. The craftsmen lived in groups, even possessing their own religious institutions in many places; the plays were those of their distinct craft. The vintners gave *The Marriage in Cana;* the chandlers, *The Star in the East;* the shipwrights, *The Building of the Ark.*[31] On the whole, we may agree with Parsons's conclusion that prior to the Industrial Revo-

[30] For a ploughman's complaint see Tickner, F. W., *Social and Industrial History of England* (London, 1920), pp. 18–19.

[31] Ashley, W. J., *The Economic Organization of England* (London, 1915), pp. 29–31.

lution "one of the valuable features of the domestic system was the social life which it made possible."[32]

The social changes wrought by the modern period of industry need scant elaboration here, so generally are they recognized. In England the forced separation of the peasant from his land by the inclosures and of the workman from his tools by modern machinery, brought about vast social distress. All the old-time securities of primitive life were swept away by the uncertainties of the labor market.

In America the suffering caused by these changes has never been so acute as in the Old World.[33] More recent developments in community life are efforts to counteract some of the characteristics of the city that carry threats of disorganization. The hope of conscious self-direction of communities rather than a blind drifting in accordance with unsensed forces, injects a somewhat new element into the situation. The whole modern trend toward community organization is a definite attempt to restore primary associations into the midst of the city life. The suburban trend is also a movement charged with great significance for the future of community relations.

We have seen how the application of the exact sciences has revolutionized the industrial world in a few decades. Surely we may voice the hope, if indeed we may not venture a prophecy, that the social sciences may justify their existence by discovering the principles that control social action, and by presenting guides for community progress.

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[32] Parsons, *Introduction to Modern Social Problems*, p. 111.
[33] See p. 200 for analysis of difference.

LOWER MACKENZIE REGION OF NORTHWESTERN CANADA

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THE following notes were made during the summer of 1923 on the region between the trading-posts of Ft. Resolution on Great Slave Lake and Ft. Good Hope on the Mackenzie River, a few miles south of the Arctic Circle. The account deals, therefore, with only a small portion of the 682,000 square miles in the Mackenzie River basin. (See Map 5, p. 213.)

Ft. Resolution is situated on a bay of the same name and near the mouth of one of the distributaries, or "snyes," as these channels are locally called, of the Slave River. Resolution is typical of the northern trading-post. It consists of a few white people, some hundred or so Indians, and literally hundreds of dogs.

The northern lakes are ice-bound quite late in the season. Ice-floes were present on Great Slave Lake as late as June 22. The ice would move toward or away from the shores according to the direction of the wind. The passenger boats are forced to wait until the lake is free from ice, but canoes and other small craft are able to take advantage of temporary breaks in the ice-floes. Ice on the lake retards the growth of vegetation until late in June. Trees along the south shore are frequently not in leaf before the end of the month. On the other hand the vegetation is much farther advanced along the Slave River, which is free from ice earlier than the lake.

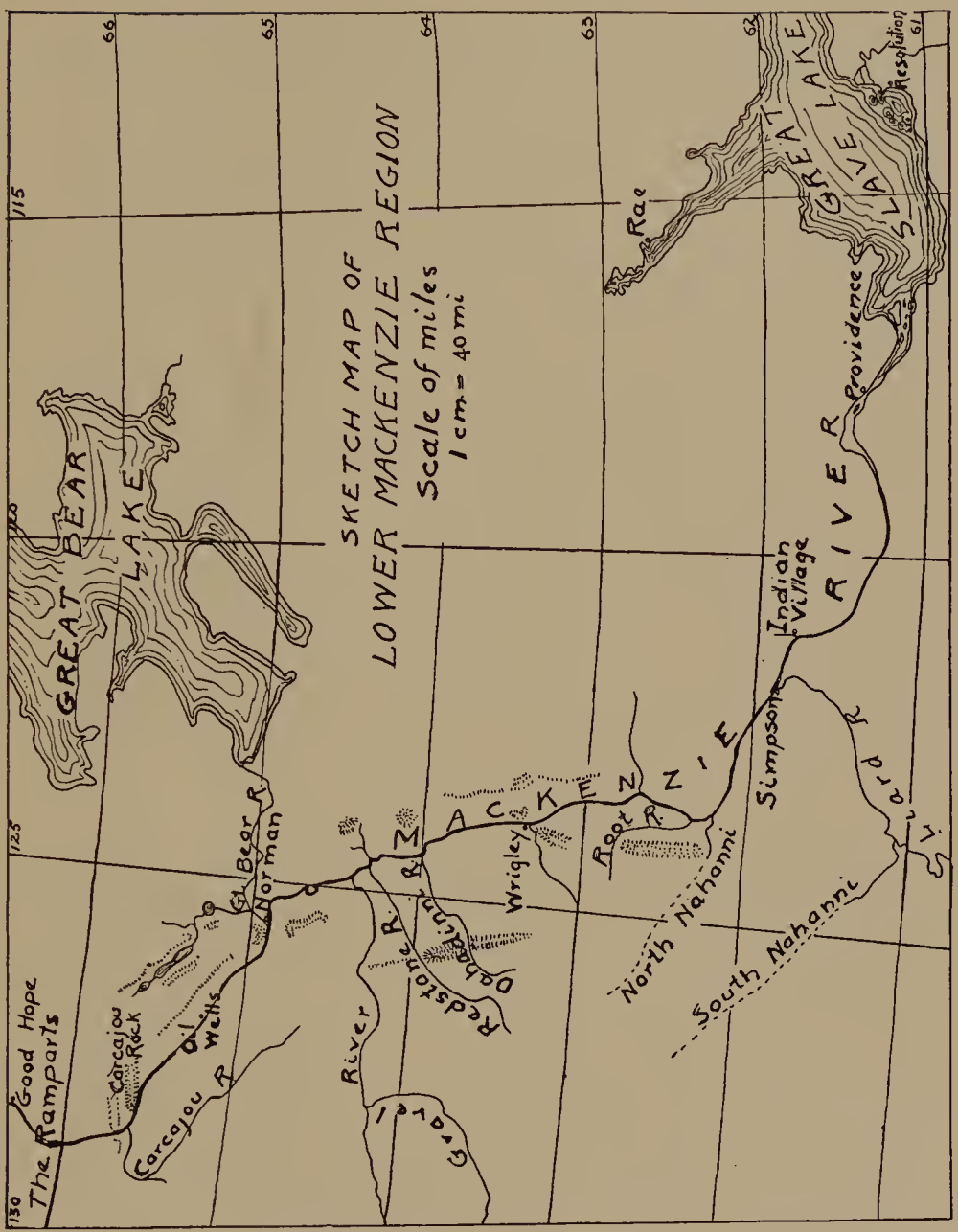
There is an appreciable current near the western end of Great Slave Lake where a drift toward the Mackenzie becomes noticeable. No marked dividing line exists between the lake and the upper part of the river, which is about seven miles in width. Several islands occur at this point, and illustrate a parallel to the Thousand Islands at the eastern end of Lake Ontario. One of

these islands, named Brabant, was occupied during a period when the ice was leaving the lake in great streams. Individual ice-floes were as much as 300 feet in length. The ice-floes pass steadily for several hours, and then there is an intermission during which the river is comparatively clear. While we were waiting for one of these periods, opportunity to examine the island was given. The flora of the eastern end of Brabant Island includes stunted spruce, small birch, Labrador tea, and Arctic moss, and differs considerably from that of the western end, where taller spruce, poplar and birch trees, without the tundra plants, are found. The deciduous trees here were all in bud, and farther advanced than those along the exposed shores of Great Slave Lake.

The Mackenzie had considerable drift ice as far down as Mills Lake. This lake is an expansion of the river about ten miles below Providence, a trading-post about 45 miles below Great Slave Lake. The sluggish and comparatively warm waters of Mills Lake are apparently sufficient to melt the ice which has drifted down stream to that point, for no floes were observed below it.

Although the Mackenzie forms the main highway of northern Canada, the unsettled character of the country on either bank gives few traffic problems. In the journey between Providence and Simpson, a distance of about 150 miles, we met only one canoe, and passed only one Indian encampment. With its conical tepees perched along a high bank above a row of birch-bark canoes, it appeared very picturesque from a distance.

Ft. Simpson is situated at the junction of the Mackenzie and Liard rivers. Both are large streams but markedly different in other characters. The water of the Mackenzie is still comparatively clear at Simpson because of the settling basin provided by Great Slave Lake. On the other hand the Liard does not flow from any lake, and its water is very turbid, and the volume subject to greater fluctuation during flood periods. At high water the Liard is said to have a greater volume than the Mackenzie. The waters of the two rivers do not mix readily, and there is a sharp contrast between the muddy water of the Liard and the clearer water of the Mackenzie. The difference in clearness of the water


SKETCH MAP OF
LOWER MACKENZIE REGION
Scale of miles
1 cm. = 40 mi
GREAT BEAR LAKE
GREAT SLAVE LAKE
MACKENZIE RIVER
Rae
Providence
Resolution
Indian Village
Simpson
Root R.
Wrigley
Norman
Gt Bear R.
Carcajou Rock
Carcajou R.
Oil Wells
Good Hope
The Ramparts
Redstone R.
Dahadinni R.
River
North Nahanni
South Nahanni
Lord R.
115
120
125
130
62
63
64
65
66

MAP 5

on opposite sides can be distinguished for about 75 miles below the junction of the two streams. Good drinking water is not obtainable on the west side of the Mackenzie, but despite this fact, most of the settlements are along that bank, because the settlers wish to make use of the large poplar trees which drift down the Liard, but are not found along the Mackenzie side. These large trees grow in the upper part of the Liard basin where the moderating influences of the Pacific upon the climate are effective.

Although Simpson is in a latitude somewhat north of Resolution, the plant growth is not retarded by a great body of cold water. By June 29, potatoes were up, hay was nearly ready to cut, and quickly growing vegetables such as radishes and lettuce were being served at the table.

From Simpson there is another stretch of about 150 miles before one reaches Ft. Wrigley. The Mackenzie Mountains are visible shortly after one leaves Simpson. The Root River Range belongs to this system and stands out as a bold escarpment when seen from near the mouth of the Root River. Its crest and eastern slopes were entirely free from snow. The fact appears to be an anomalous one, for a journey inland proves that the subsoils in this region are permanently frozen.

The Mackenzie River for part of its course flows obliquely across the trend of several mountain ranges. None of these is comparable in altitude or topographical aspect to the front range of the Rocky Mountains near the international border. Most of the ranges of the Mackenzie region have a relief of less than 2000 feet, and the tops of many of the mountains are rounded. Several streams flowing from the west into the Mackenzie have their sources in ranges which parallel the main stream. The Dahadinni River, some 35 miles below Wrigley, is an example of one of these tributaries. It rises nearly 40 miles west of the Mackenzie. The Dahadinni has a steep gradient, and numerous boulder rapids which make it unnavigable even for canoes. A trip inland up such a valley as this must be made by back-packing. No trails can be followed other than the slashings made by a prospector — in the winter, a trapper — along his winter trap line. In the summer of

1923 a large fire was burning in the country 20 miles back of the Mackenzie. Such fires are detrimental to trapping since they destroy the forests frequented by the fur-bearing animals. In place of the poplar, birch and spruce trees, small shrubs spring up. Such burnt-over land is known as "brule," and is good moose-hunting area. The fires are ordinarily attributed to the natives, who are hunters, rather than trappers.

Among small plants growing in the Dahadinni Valley the wild strawberry was noted. It was not observed north of the Dahadinni. Raspberries, gooseberries and red currants were found almost as far north as the Arctic Circle and are recorded even farther north.

The Redstone River, a somewhat larger stream than the Dahadinni, enters the Mackenzie 25 miles below the Dahadinni. There is a large delta at the mouth of the Redstone which has been sharply truncated by the swift current of the Mackenzie. Though the surface of the delta is several feet higher than the normal level of the Mackenzie, there is reason to believe that when the ice goes out of the main stream the water rises above the delta, because the trees here are snapped off at a height of three or four feet. This probably happened when the ice in the main stream backed up the tributary valley, because of an ice jam which had formed below the Redstone. These ice jams occur frequently on the Mackenzie, since the lower reaches remain frozen after the ice upstream is bulged up and broken. The ice first moves out of the Liard River, and the rising waters of this stream cause the progressive buckling up of the ice on the Mackenzie below Simpson.

The Mackenzie frequently broadens out to a stream several miles in width below its confluence with the Redstone. Gravel bars are common, and the mapping of a permanent channel is difficult because of the shifting nature of the currents. The flat-bottomed sternwheelers and loaded scows frequently run aground. One of the Hudson Bay Company's boats was stranded on a gravel bar for several weeks.

Ft. Norman is a trading-post on one of these broad stretches. It is built at the mouth of the Great Bear River, about 300 miles

below Simpson. Norman gained considerable notice in the years immediately following 1920 when there was a great deal of oil excitement in this region. By 1923 the excitement had died down and Norman's chief claim for fame at the time was the possession of a horse. It was the only horse north of Simpson, and to the Indians it was stranger than the aëroplanes which used to fly to the oil camp north of Norman. To them, the aëroplane was just a machine somewhat more wonderful than the steam- and motor-boats, but the horse was a creature akin to no animal they knew. When the horse was first brought to Norman the men wanted to shoot it; the Indian children feared it, or at least stood in awe of it. The horse adapted itself to the country, and was in excellent shape. As a means of transportation it will be second to the canoe and to the husky.

The oil field is 50 miles northwest of Norman. The Imperial Oil Company has drilled several wells in the region, the first of which has yielded a notable production. The presence of oil was known for over 100 years, since seepages occur along the river for many miles.

Portions of the Mackenzie between the wells and Good Hope are very impressive. Carcajou Rock, which is formed by a highly tilted limestone formation, rises abruptly from the water to a height of several hundred feet. An erosional remnant, high up the slope of the escarpment, resembles the form of a wolverine. This is the landmark for which the mountain is named.

About nine miles above the post of Good Hope the river suddenly contracts from a stream that is nearly two miles in width to one that is less than half a mile. The river enters a steep-walled canyon that is known as the Ramparts. This is comparable to Niagara Gorge. The walls of the canyon show the bedding-planes dipping gently upstream like those in the walls of the better known gorge, and like that gorge, the Ramparts were probably formed by a waterfall as it retreated upstream. We do not find any waterfalls at the head of the Ramparts today because the limestones exposed in the canyon are replaced there by softer rocks. The latter were deposited in hollows of the limestone which had been eroded long before the age of the

Mackenzie by streams that had an east-west trend. Once the prehistoric Mackenzie waterfalls had retreated to the unconformable boundary between the hard limestone and the softer rock, the falls disappeared rapidly, and now only a small rapids formed by the lower beds of the limestone is in existence. If it were not for the unconformity, the ancient waterfalls would have persisted until the dip of the beds had carried the upper beds of the limestone below the level of the river, and waterfalls as great as those of Niagara would still be in existence.

Good Hope lies only two miles below the end of the Ramparts. It was reached late in August a few days before one of the steamboats was due to make its last trip of the season south. Canoes were disposed of at the post. Then followed a short wait until the boat arrived, and the homeward journey began.

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THE HIGHLAND RIM IN THE VICINITY OF MILL SPRINGS, KENTUCKY *

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MILL SPRINGS, Kentucky (Map 6), and its immediate vicinity, on the Highland Rim within two miles of the outliers and slopes of the Cumberland Plateau, present a very distinct picture. A gently rolling surface (Map 7) dotted with sink holes gives way on the north to the dissected steep slopes of the Cumberland River Valley and to the south rise the slopes of the Cumberland Plateau. Corn-fields and pasture land interrupted on the more rugged portions of this surface by patches of woodland dominate the landscape and the presence of houses and stores along the main road, the Monticello-Burnside Pike, seems to indicate the importance to the area of an improved route of communication.

1. NATURAL SETTING

Surface

The Highland Rim in this section lies between 800 and 940 feet above sea-level. Early mature mantled karst expresses most aptly the features of surface and drainage which are encountered. The parent material in which the present surface has been etched is of the Saint Louis formation consisting of impure limestones. In that portion to the west of Mill Springs, erosion is well advanced, and the surface is somewhat more broken than is the land to the southeast of the village. To the east and northeast, there are remnants of outliers and the erosion of the valley edge has had a more noticeable effect upon that portion of the upland nearest

* This study was made at the University of Michigan Geography Field Station, Mill Springs, Kentucky, during the summer of 1928, under the direction of Dr. R. Burnett Hall.

to it. The largest stream, Meadow Creek, presents an example of an underground stream in part of its course. Most of the sink holes are filled with water, and there are no streams whose courses are on the surface throughout their lengths.

Soil

The soil is, for the most part, a deep, residual one, with parent material of the Saint Louis formation. It may be divided into

Map 6. Diagram showing the physiographic regions of Kentucky and the location of the Mill Springs area
1. Appalachian (Cumberland) Plateau 2. Interior low plateaus: *a*, Lexington Plain; *b*, Highland Rim 3. Mississippian embayment; × = Mill Springs

four main groups or types: clear loam; pebbly; rocky, or "niggerhead"; and fragmentary. By far the most common type areally is the "niggerhead." The clear loam occupies the next greatest area, and only small areas of pebbly and fragmentary soil are found. All these types have a reddish brown color at the surface, becoming lighter in color with depth. The "niggerhead," which is characteristically the soil of the area, is loamy in its upper horizon, apparently becoming less so with depth. Scattered unevenly throughout it are large pieces of limestone and chert, the latter being far more prevalent. These are of about the size and shape of a sheep's head, and are colloquially called "sheeps'-heads"; more often, however, they are called "niggerheads."

MAP 7. Contour map of the Highland Rim in the vicinity of Mill Springs, Kentucky

In wet weather, these soils become very heavy and their clay content is well emphasized. The clear loam is very similar to the niggerhead, except that it does not contain rock fragments. The fragmentary soil is found chiefly in close proximity to the lower portion of the colluvial base of the Cumberland Plateau. The pebbly soil appears more or less scattered over the whole area, though no large individual patches are found. The pebbles are near the surface, and have the appearance of being water-worn. Their origin is not definitely known, but probably they were transported to the area by post-glacial streams from the Cumberland Plateau.

Vegetation

The area was probably originally covered with a light forest, small patches of which remain to the present. This forest was not so dense as was that of the Cumberland Plateau, and throughout it were patches of grassland. Back in the coves and on the slopes of the Cumberland River Valley, there still remain numerous cedar glades. In the patches of woodland that remain, chestnut and walnut are most prominent. Oak and poplar are found, but have largely been cut off, with, of course, no systematic attempt at reforestation.

2. MODIFICATION OF THE NATURAL SETTING

The original inhabitants of the area were Indians primarily engaged in hunting and fishing. With the coming of the whites, agriculture became the dominant pursuit and has continued so to the present. The first settlers found the area to be along the route from the coast to the Blue Grass region and to the Nashville Basin. With the westward expansion of the country, this route became little used. The apparent wealth of resources dwindled in comparison to the unknown resources of the west, and many settlers left the area for the new lands. Until the conclusion of the greatest period of western expansion, this area was isolated. Then began the improvement in communication which has left its impression on the present landscape.

Early Settlement

The white population is, for the most part, made up of descendants of the original pioneers who came through the Cumberland Gap from the Carolinas and Virginia. The stories of the present inhabitants encourage the belief that the original settlers were temporary in their occupation of the land. It is quite probable that some of the pioneers were hunters, but the record of permanent settlement at the base of the Cumberland Plateau, where the waters of Meadow Creek were available, leads to the conclusion that there were also among the first settlers those who were seeking permanent homes with brighter possibilities than had been found to the east. This area lay along the road from the Blue Grass to the Nashville Basin, and was a likely land in which to settle.

> The first settlements were all in the timber or on its edge, not necessarily because of any distrust of the fertility of the grass-lands, but because a site in the forest country was more eligible for the frontiersman. For example, the oldest settlement in Wayne County, before 1790, was made on Meadow Creek, at the base of the Mountains, and in a cove extending back into the mountains. Here was good timber for the home and farm needs, walnut and chestnut that split easily into rails and could be hewn readily into timber; the soft, yellow poplar, a wood of all uses, and the giant white oak to be riven into shingles. Here were also great, cold springs, issuing at the base of the Mountains, stone for fire places and chimneys, and abundant mast for hogs. Immediately adjacent were the meadows of the limestone plateau, and level deep soil that could be cultivated without clearing.[1]

The settlers were at first occupied with the necessity of obtaining a permanent home and entrenching themselves in a self-sufficient position. They brought with them the corn and wheat which supplied their grain needs. The raising of a few cows and sheep, augmented by hunting, provided meat, leather and wool. By tradition, the people were primarily agriculturalists, and they remained so with some tendency toward cattle raising.

Later Settlement

Slaves were brought in and their descendants now make up a considerable part of the population. The increase in numbers

[1] Sauer, C. O., *Geography of the Pennyroyal*, Kentucky Geological Survey, Series VI (Frankfort, Ky.), 25 (1927): 134–135.

of settlers led to an attempt to utilize the land across the river, and with this came the probable "raison d'être" of Mill Springs. The only fording place of the Cumberland River for many miles in either direction was in that part which is just below the clump of houses which make up the center of Mill Springs. Again, with the influx of settlers, there arose a need for a mill at which grain could be ground. The only surface stream in the area which could produce the power to turn a water-wheel of any size flowed down the dissected slope of the valley edge at the same place. A mill was built there, and probably accounts for the name of the village. With these two factors playing a very important part, there arose a distinct tendency for all roads to lead to Mill Springs.

The improvement of the pike, or, better perhaps, the establishment of the pike, was really only an emphasis of existing routes. It enters the area from the east, just to the south of an outlier of the plateau, and, turning rather sharply in a northwest direction, approaches the dissected edge of the upland. At Mill Springs, on the upland edge, it again changes direction, and continues almost due south into a cove between outliers of the plateau where there is a gap through which it finds an easy route to Monticello. Throughout its length, the pike follows the plateau edge, or the edge of the outliers, with the exception of its course through this one area where it definitely leaves its normal route to approach the river.

The Present

The pike provides an easy route of transportation and communication, and has had no little effect on the improvement of the area both economically and socially. The houses are distributed along it, and the establishment of stores at the intersections of other roads with it can be noted. The factor of isolation, with its power of forming small groups of people hostile to adjacent groups, and completely out of touch with the rest of the world, has been at least partially overcome. The establishment of stores has brought a common meeting place where news is gathered and dispatched, problems of general interest are discussed, and knowl-

edge is disseminated by those who are recognized as the better or more prosperous of the farmers.

A few of the younger and more alert farmers are beginning to believe that probably the land cannot grow corn successfully for a hundred years or more without some care. They are beginning to try fertilization and rotation of crops. They realize that they must get all the benefits of life by their own devices, and these devices they are able to improve not only among themselves, but also by the cultivation of relations with the outside world.

The cross-roads store provides the people with their small needs by accepting poultry, eggs, corn and even hogs in exchange for the articles purchased. For machinery, farmers prefer to go to Monticello, where there are two well-stocked farm implement stores. Rarely purchases are made at Somerset and Burnside. There must be mentioned in addition the extensive patronage of mail-order houses for all articles ranging from coffee pots to suits and dresses. It appears that this source of human comfort is now less used than some fifteen years ago, before the improvement of the pike or the establishment of all but one of the stores.

Many of the houses along the pike have been painted, some for the first time. Some broken window panes have been replaced, though there are still many signs of the carelessness of the occupants. To the west of Mill Springs and away from the pike, the houses are in wretched condition. Sagging roofs, broken porch floors, and tottering joists appear to be quite in keeping with the energy of the inhabitants. Some of the rooms of the houses along the pike have been plastered and papered, and the walls of every room have at least been covered by newspapers. Away from the pike, even the newspapers are missing. With the removal of the factor of isolation, more and more care is being taken of the appearance of all farm property. Of course, not all the poor farm buildings have been removed from their places along the road, nor are the more isolated sections completely devoid of any signs of improvement. In the midst of the clump of houses which forms the center of Mill Springs, there remain two very dilapidated barns; one is given over to storage, and the other combines the functions of store, garage and blacksmith shop. In one of the

coves, one of the most modern of farms is found with its substantial house and barn and fences, and this is two miles away by the most practicable road from the pike. In general, all the houses of the area which are east of Mill Springs are in good repair, but those to the west are just about standing.

To the west of Mill Springs, the greater percentage of the land is in pasture. To the east and northeast, the outlier remnants are quite heavily wooded, and most of the remainder of the land is in pasture. In the area between the parts of the pike, most of the land is in crops. Yet there appears to be no striking difference between the farms in acreage of crops grown and the crops appear to bear no direct relation to the type of soil on which they are grown. It can be said, however, that corn is usually found on the loamy soil or on the niggerhead, and permanent pasture appears to be found in areas of fragmentary and pebbly soil. Corn is by far the most important crop on all farms, occupying nearly one third of all the land. The average farm has about fifty acres in corn, and about twenty in other crops, of which oats is at present the most important. Wheat often occupies a position of importance as a winter- or fall-sown crop,[2] but, during the year 1928, it had only a small acreage. The winter of 1927–28 was unusually severe, and the winter-killing of wheat necessitated

[2] The climate of the area is of the type Cfa. Though no weather station is located in the area rainfall and temperature are comparable with Eubank, Williamsburg and Burnside, as shown by the following statistics from *Bulletin W*, U. S. Weather Bureau.

RAINFALL

	J	F	M	A	M	J	J	A	S	O	N	D	Year
Burnside (733)	4.7	4.3	5.3	4.3	4.2	4.2	4.9	4.1	3.5	2.9	3.3	4.2	49.9
Eubank (1177)	4.4	3.6	5.1	3.9	4.3	4.1	4.5	4.2	3.5	2.9	3.3	4.1	47.9
Williamsburg (939)	4.6	3.9	4.8	4.1	4.3	4.6	5.1	4.8	3.3	2.7	3.1	3.7	49.0

TEMPERATURE

	J	F	M	A	M	J	J	A	S	O	N	D	Year
E.	34.8	34.8	46.2	54.4	64.0	71.5	74.9	73.8	68.4	57.0	45.1	36.1	55.1
W.	38.2	38.2	49.0	55.8	66.1	73.8	76.5	75.8	70.6	59.8	47.3	38.9	57.5

replanting of the ground usually given over to it. Pasture, both cleared and brush, and woodland occupy somewhat over one half of the land. Less than one fifth of this can be classed as woodland, and the tree growth in any part of it is at best second rate. The stocking is mostly from three to six inches, and the patches of woods are crowded with underbrush. It might well be classed as waste land. Its function is almost non-existent, but it does occasionally supply firewood, and at times even timber for a temporary sawmill which at present is located beside the pike about a mile east of Mill Springs. There is a coffin factory, the work in which occupies most of the time of two individuals, but the sources of supply for this industry are the cedar glades which are found off the upland proper on the slopes of the Cumberland River Valley and on the slopes of the Cumberland Plateau.

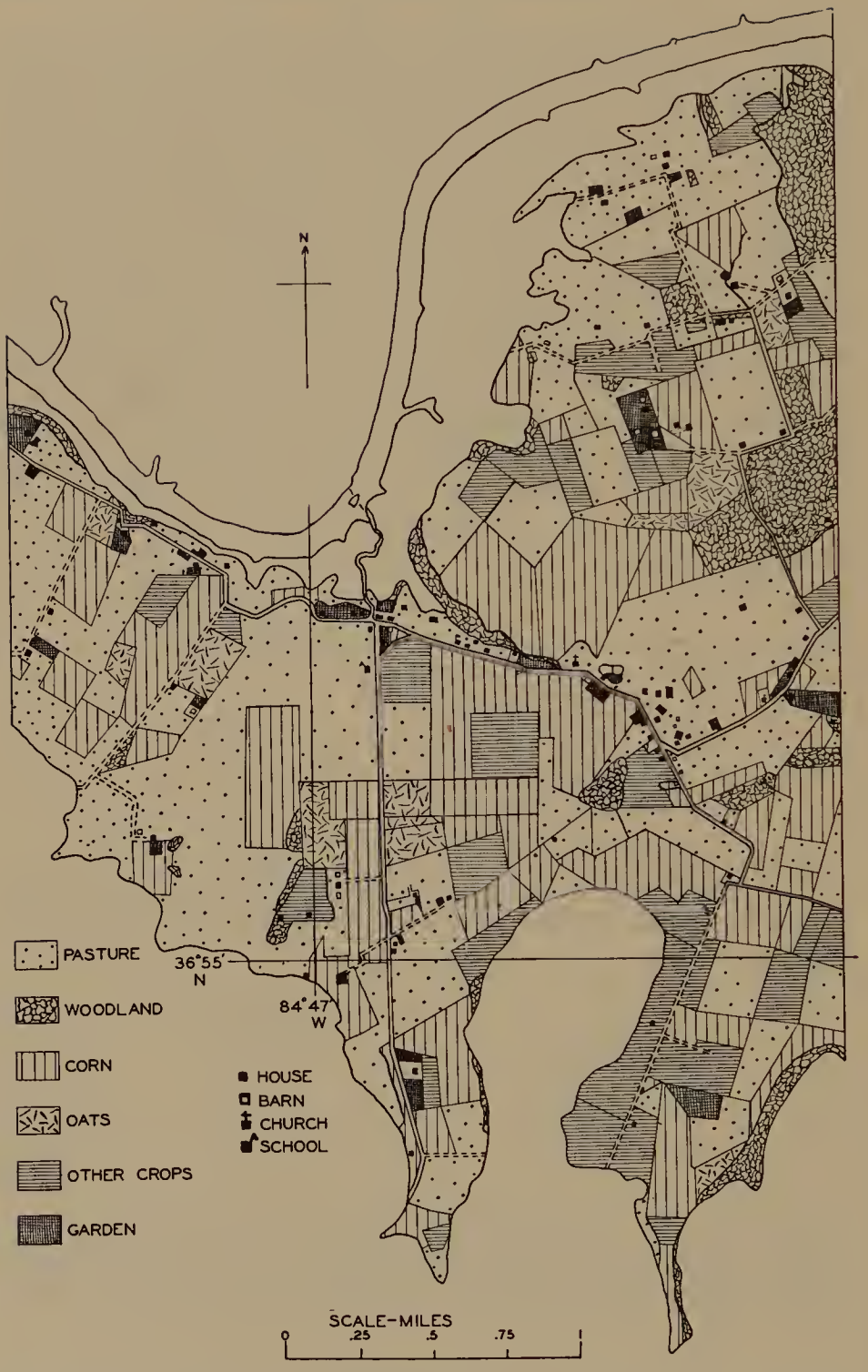
An analysis of the cover map of the area (Map 8) supplies the following table:

	Percentage of the total land
Pasture (all kinds)	46.3
Corn	28.5
Woodland and waste land	6.2
Oats	3.6
Garden	1.9
Other cropped land [3]	9.9
Roads, houses, barns, etc.	3.5
	99.9

The percentage of the land in crops amounts to 43.9 per cent. The percentage of total cropped land in different crops is as follows:

	Percentage of the cropped land
Corn	64.8
Oats	8.0
Garden	4.5
Others	22.6
	99.9

[3] Other cropped land includes land in wheat, cow peas, hay, tobacco, sorghum cane and watermelons; wheat and cow peas, about one third each of the land so classed, while hay occupies about one sixth; tobacco, sorghum cane and watermelons the remaining one sixth.



MAP 8. Cover map of the Highland Rim in the vicinity of Mill Springs, Kentucky

Some two hundred head of cattle and two hundred and fifty hogs are kept on fifteen farms in the area. According to estimates made from statements of the farmers, the number of hogs has been slowly decreasing in the past few years, while the number of head of cattle per farm has steadily increased. Many mules are kept as work animals, but the number of horses is very small. On the fifteen farms, there were forty-one mules and thirteen horses. Almost every farm has its quota of hens, or a few ducks and geese are kept. The poultry is of the scavenger type, and the products are mainly for family consumption, though some eggs, and, infrequently, chickens, are used in barter at the nearest store.

The dominance of corn in the crop land and the presence of a considerable number of livestock bring out more clearly the changing conditions. For many years, the people of the land were very nearly self-sufficient. They were isolated, and had to produce those things which gave them the greatest return for their energy expended. Corn for cereal was necessary. It grew well. The yield was high on the new and unused lands. It provided animal as well as human food. There was need, however, for variety of diet. Some meat was essential, and what could be more natural than the raising of the best converter? The hog became part and parcel of the life of the area. If corn was scarce, the hog could obtain food from the forest. A few cattle were kept, partially, at least, as a source of dairy products. Occasionally, the flesh of a cow gave a respite from the steady diet of "hog meat." Then, with the change in transportation facilities, which diminished the isolation, there came a realization of the possibility of producing for other parts of the country. It may not have been a conscious realization. The chance of buying goods manufactured outside the narrow sphere of existence of these people gave rise to the need for money. Their life before had been conducted without the use of currency. Barter had sufficed to purchase most of their needs. Now, a cash crop was necessary. The gradual change from the self-sufficient existence is still apparent. At the present time, about sixty-five per cent of the corn is fed to livestock, about fifteen per cent is used as human food, and the remainder is sold to the mill at Mill Springs. It would seem quite

probable that there will be a continued increase in the practise of fattening cattle for the Cincinnati market.

The change in purpose of cattle raising and the relative decline in the raising of hogs has not as yet altered to any great extent the customary diet of the people. Corn in all forms (but more particularly as corn pone), "hog meat" and black coffee can be had at all times in all homes. Other things are still much of a luxury, though, of course, there are many vegetables during their growing months. With the establishment of many stores, there came the opportunity of a more varied diet by the consumption of canned goods. Peculiarly enough, the sale of these canned goods appears to be almost wholly in the line of fruits. The change is coming in the manner of life of the people, as well as in their ideas, but as yet it has made but slight progress.

3. CONCLUSION

In a natural setting, apparently, at least, well suited to the establishment of a fine agricultural community, a pioneering people settled and appeared for a while to have become isolated on the banks of the river of human life. They were isolated because of the development of other routes of travel to newer lands, which were discovered after the settlement of the earlier frontier. They had gone into the land with the desire to make a true home, and, of necessity, they had to make themselves self-sufficient for a time at least. They proceeded to do this effectively. Then, after their firm establishment, they turned about only to see the eyes of their nation fixed on newer and more distant lands — marvelous agricultural lands. Some of them went to the West. Many remained and continued their isolation. Their descendants have seen the growth of newer and better transportation routes and facilities. This growth has removed the factor of isolation and we see a people who are slowly changing their life. They have once again felt the sweep of the current, and are leaving the banks to enter again into the main stream of human activity.

UNIVERSITY OF MICHIGAN

THE OCCURRENCE OF GLAUCONITE IN THE HERMANSVILLE FORMATION OF ALGER COUNTY, MICHIGAN

STANARD G. BERGQUIST

GLAUCONITE is a dark green mineral with a dull luster and a lighter green streak. It is very soft and may readily be broken with the finger nail. Dana[1] gives the hardness of glauconite as 2 and the specific gravity as 2.29–2.39 and describes it as usually being amorphous. The chemical composition of glauconite is quite variable and indefinite, but it is essentially a hydrous metasilicate of iron and potassium with some aluminum. When pure, it probably has the composition represented by the formula $Fe''' K Si_2O_6$ aq.,[2] in which some of the iron may be replaced by aluminum, and other bases may replace potassium. With the composition thus given, glauconite should contain 13 per cent of potash.[3] The iron is present principally in the ferric form, but usually there is some ferrous iron in association with it.

Leith[4] accounts for many of the observed variations in the composition of glauconite as being due to partial alteration of the mineral, resulting in the loss of alkali and the taking up of water. The other variations represent the replacement of the iron salt by its aluminum equivalent and of the potassium salt by corresponding compounds of sodium, magnesium and ferrous iron.

The origin of glauconite is not quite thoroughly understood, but it is thought to form inside shells, mainly Foraminifera, in

[1] Dana, E. S., *System of Mineralogy*, 6th ed., p. 683. 1914.

[2] Clarke, F. W., *The Data of Geochemistry*, 5th ed., U. S. Geol. Surv. Bull. 770, p. 521. 1924.

[3] Ashley, G. H., "Notes on the Greensand Deposits of the Eastern United States," *U. S. Geol. Surv. Bull. 660*, p. 34. 1917.

[4] Leith, C. K., "The Mesabi Iron Bearing District of Minnesota," *U. S. Geol. Surv. Mon.* 43, p. 245. 1903.

marine sediments along the shores of the continents, usually at depths greater than 600 feet, but ranging from about 300 feet to somewhat more than two miles.[5] According to Murray and Renard,[6] organic matter inclosed in the shells and associated with the mud itself, through the action of sulphates contained in the sea water changes the iron of the mud into sulphide which may later be oxidized into ferric hydroxide. Sulphur, liberated in the process, becomes oxidized into sulphuric acid, which in turn decomposes the fine clay, causing the precipitation of colloidal silica and, at the same time, the removal of the aluminum by solution. The colloidal silica thus released reacts upon the ferric hydroxide in the presence of potash salts of the sea water and glauconite is formed.

Glauconite is widely distributed in the various oceans where it is now forming abundantly near the mud line just beyond the limits of wave and current action. Harder[7] states that glauconite is disseminated in marine sediments of all geologic ages and that in the Paleozoic rocks it occurs most abundantly in Cambrian and Ordovician strata. Cambrian greensand is common in the north central United States, where it is associated with siliceous limestone and calcareous sandstone beds.

In the geologic studies conducted in Alger County for the Land Economic Survey in the summer of 1928, it was noted that the surface drift in widely separated areas contained slabs and fragments of rock heavily impregnated with glauconite. Wherever these erratics had undergone weathering, patches of greenish clay, in many cases quite plastic, would result. Further investigations carried on to determine the probable source of the glauconitic rock resulted in the uncovering of highly concentrated zones in certain portions of the Hermansville formation.

Rock specimens were collected from two different exposures about ten miles apart in Alger County and these were studied

[5] Mansfield, G. R., "Potash in the Greensands of New Jersey," *New Jersey Geol. Surv. Bull. 23*, p. 138. 1923.

[6] Murray, John, and Renard, A. F., "Deep-sea Deposits," *Challenger Report*, p. 389. 1891.

[7] Harder, E. C., "Iron Depositing Bacteria and Their Geologic Relations," *U. S. Geol. Surv. Prof. Paper 113*, p. 59. 1919.

individually for the purpose of finding out to what extent glauconite was present in the formation. The section at Au Train Falls on the Au Train River in NW. ¼, SE. ¼ Sec. 31, T. 46 N., R. 20 W., represents a thickness of about 90 feet made up essentially of dolomite with varying amounts of siliceous material. The section at Wagner Falls on Wagner Creek in NW. ¼, NE. ¼ Sec. 14, T. 46 N., R. 19 W., was sampled through a thickness of 61 feet. The upper 36 feet of this section is made up of siliceous dolomite which rests upon a lower, slightly calcareous ferruginous sandstone.

In the exposure at Au Train Falls, glauconite was found to be disseminated through most of the 90 feet of the section. Of the sixty specimens examined, only three were entirely devoid of the mineral; the others contained it in greater or lesser amounts.

The glauconite is not uniformly distributed through the mass of the rock. It seems to be most heavily concentrated at the base and forms into a series of thinly laminated bands in the lower 10 feet of the section. The bands in which the glauconite is so abundant as to impart to the rock a distinctly greenish color are relatively thin, ranging from merely a few inches to 14 inches in thickness. In these areas glauconite forms as much as 25 to 35 per cent of the total mineral composition of the rock. In the remaining upper portion of the section, glauconite is widely distributed through the rock mass, occasionally developing finely laminated areas, but more generally occurring as interstitial grains. No glauconite was detected in the specimens representing the upper 5 feet of the formation.

Pyrite is a common associate of the glauconite and occurs in minute grains which are disseminated through most of the formation. The mineral seems to be present in very small amounts in the lower 10 feet of the section where the glauconite is most abundant. At 50 feet above the base of the formation the pyrite is concentrated into a small system of veins and lenses ranging from one sixteenth to one quarter of an inch in thickness. In this pyritic zone, glauconite is entirely lacking, but just above, it comes in again as pyrite disappears. The pyrite occurs essentially as small grains diffused rather widely through the rock,

except where it is concentrated into lenses and nodules. In places it is intimately associated with the glauconite as minute inclusions or forms border granules completely surrounding it.

Ferric hydroxide in the form of brownish grains, crusts and stains is distributed generally through the rock of the section. It seems to occur with the pyrite to a large extent, but is most abundant in the areas where pyrite and glauconite are relatively sparse or entirely lacking and especially near the surface in the oxidized zone. In the areas where the limonite is most highly concentrated, it forms distinct laminations in the rock in much the same way that glauconite forms thin layers where it is most pure. Where the pyrite nodules have undergone alteration, they are frequently coated with a brownish layer of limonite.

It is quite obvious from the nature and the distribution of the limonite in the rock that it has resulted, at least in part, from the decomposition of the pyrite.

Clay, in the form of fine dust and powder, is scattered through the rock, generally as a coating around the quartz and calcite grains in the mass, but occasionally also as distinct lenses and layers in shale. It is usually present in quantity sufficient to give to the rock a distinct argillaceous odor.

In the exposure at Wagner Falls forty-eight specimens, representing a total thickness of 61 feet, were studied. Glauconite was found to be present in the upper 36 feet of the section covered by twenty-eight specimens. This portion of the section is made up of rock which ranges from siliceous dolomite to calcareous sandstone. Below the upper 36 feet, the rock changes to a sandstone composed largely of silica and containing some calcareous cement.

At the contact between the lower sandstone and the upper more calcareous rock, glauconite is concentrated into a series of thin lenses which are interlaminated with the quartz and calcite. These lenses form a banded zone of distinctly greenish rock about 14 inches thick. For a distance of 15 feet above this contact, the glauconite is quite widely scattered through the rock with some limonite and pyrite associations. In places where the limonite is concentrated and definitely laminated, glauconite is

present in occasional grains only. In the upper 21 feet of the section, glauconite is profusely disseminated through the rock mainly as interstitial grains, but forming also definite laminations and bands ranging from a few inches to 14 inches in thickness.

Pyrite occurs as scattered grains and occasionally in small knots in certain portions of the rock, but it is not widely disseminated through the section. It seems to be confined to a few narrow belts in the rock and especially in the areas where glauconite is rare or lacking altogether.

Limonite, in the form of small grains, dust and stains, is diffused in varying amounts through the rock. At intervals in the section it is concentrated into definite thin laminations giving to the rock a banded appearance. The glauconite appears to be present in very limited amounts in the areas where the limonite is most prevalent.

In places, the glauconite is interlaminated with thin lenses and seams of shale. Many of the quartz and calcite grains are coated with a fine dust or powder of clay which seems to be present as a part of the cement in the rock.

The glauconite, as it occurs in the rock specimens studied, is mainly in the form of small rounded grains. These range in size from very minute particles to fragments with diameters slightly over 2 mm. The majority of the grains are less than 1 mm. in diameter while comparatively few exceed 2 mm. The average glauconite grains run as large as, and larger than, the quartz grains found associated with them in the rock. Most of the grains of glauconite are worn smooth and bear evidence of having been transported before redeposition. The weathered surfaces of the mineral are usually coated with a darker green and appear quite dull in luster, some of the grains assuming a semi-enamaloid appearance. When broken open, however, these particles are light green in color and somewhat earthy in luster.

Except where the mineral is concentrated into thin laminae and bands, the grains are quite widely separated in the rock matrix and occupy the interstices between the quartz and calcite particles in the rock. In the large number of glauconite grains examined under the microscope, no evidence was found to bear

out the theory that foraminiferal shells were involved in the formation of the glauconite. Neither was there any indication that the grains of glauconite consist of cores which are apparently nearly pure silica, as suggested by Hart.[8]

Because of the close association of the glauconite with the matrix of the rock, it is quite impossible to separate the mineral out in sufficient amounts to run a chemical analysis on the pure material. Attempts were made to concentrate the mineral by magnetic separation in the method described by Mansfield,[9] but with no success. Either the magnetic field was too weak or the glauconite had lost its property of magnetism.

Analyses were made on two of the more highly concentrated glauconitic rock samples taken from the Wagner Falls section. Sample 1 represents a twelve-inch layer of the rock taken out at a depth of eleven feet below the surface. Sample 2 is from an eight-inch layer 8 feet lower than 1, or about 19 feet from the surface. The glauconite in both these samples is sufficiently abundant to give to the rock a distinctly greenish color. It is associated with a large number of subangular grains of quartz.

Analyses of the Glauconitic Rock

	Percentages in sample 1 *	Percentages in sample 2 †
SiO_2	53.80	49.90
Al_2O_3	1.75	10.30
Fe_2O_3	2.96	
FeO	1.07	———
MgO	7.98	7.83
CaO	11.40	12.93
Na_2O	1.00	———
K_2O	1.52	1.90
Mn_3O_4	———	0.15
P_2O_5	———	0.40
CO_2	not det.	16.28
SO_3	———	1.02
H_2O	———	———

* Analyses of sample 1 by E. Leininger and F. B. Leedy
† Analyses of sample 2 by O. B. Winter

[8] Hart, Edward, "Glauconite or Greensand," *Journ. Am. Chem. Soc.*, 39: 1919. September, 1917.

[9] Mansfield, G. R., *op. cit.*, p. 118.

The following table giving the approximate composition of glauconite as compiled from a series of analyses of greensand deposits in the eastern United States will serve to give comparisons:[10]

	Percentages
Silica	50.0
Ferrous iron	4.0
Ferric iron	19.0
Alumina	7.5
Magnesia	3.0
Potash	7.5
Water	8.5
Soda and Lime	0.5

From the observations made in the two sections studied it seems probable that the presence of glauconite may find some value as a horizon marker and be of assistance in working out more definite correlations.

Michigan State College
East Lansing, Michigan

[10] Ashley, p. 33, as cited in note 3.

INTERPRETATION OF RECENT DISCOVERIES IN THE SALT-BEARING ROCKS OF MICHIGAN

ROBERT B. NEWCOMBE

THE areas of rock salt deposition have always been referred to as basins. The most important deposits of bedded salt in the northeastern states occur in western New York, northeastern Ohio, western Ontario and the southern peninsula of Michigan. Up to the present time all these beds have been considered Silurian and referred to Lower Cayugan or Salina age. Lane[1] thought that the New York and Michigan salt basins were not entirely separated and were joined across some part of Ontario that was as yet unexplored, probably between Goderich and Petrolia. To judge from his writings in 1913 Cook[2] was inclined to be of the same opinion, but he tended to be non-committal on the certain existence of a physical connection between the New York and Michigan basins. Alling,[3] in his recent work on the Silurian salt of New York state, expressed the belief that the Ohio-New York basins were continuous, but that the Michigan-Ontario and Ohio-New York basins should be considered as separate. In his correlation table, however, he compared the Salina salt of Michigan directly with the Camillus salt-bearing beds of New York.

The discoveries of recent deep wells in Michigan show that the Michigan basin has a distinct problem of similar nature within its own borders. A correlation of salt-bearing beds in well records demonstrates that more than one important age of rock salt

[1] Lane, A. C., *Tenth Annual Report, Mich. Geol. Surv.*, 1908, p. 61.

[2] Cook, C. W., "Brine and Salt Deposits of Michigan, their Origin, Distribution and Exploitation," *Publ. 15, Geol. Ser. 12, Mich. Geol. and Biol. Surv.*, 1913, p. 82.

[3] Alling, H. L., *Geology and Origin of the Silurian Salt of New York State Publ. 275, Bull. New York State Mus.*, 1928, pp. 8, 10.

deposition existed within the state. Cross-sections bring out the fact that salt was deposited not only in the Silurian, but, if our present correlation of Detroit River is correct, in the Devonian as well.

This conclusion was first suggested when salt was encountered in a well drilled near Roscommon at a depth of only 275 feet below the base of the Dundee limestone. Later, in a drilling near Walhalla, Mason County, an important sandstone member with characteristics resembling Sylvania was struck at 280 feet below the last salt bed. This sandstone was first correlated as a member of the Guelph because of its unusual position below the salt and the association with a few thin streaks of white cherty dolomite. In the summer of 1928 the deep test at Manistee revealed further supporting evidence which cannot be related because the information is held as confidential.

A well completed in the fall of 1928 near Fowlerville, Livingston County, exhibited an abnormally large thickness of Detroit River formation which led to mistaken correlations by nearly every geologist working in the state. A similar thick Detroit River section has just recently been penetrated by a deep test at Saginaw. This well also showed some free salt at a depth in the Detroit River which directly compares with the upper salt in the western part of the state.

Four sections which demonstrate these relationships have been drawn across the state in different directions, as shown in Figure 2. In constructing these sections a stratigraphic datum has been used for the purpose of more directly comparing formations and eliminating the contortion involved by a basinward dip. For sections A–A′ and C–C′ the base of the Devonian or the Sylvania sandstone has been used as a datum plane and for sections B–B′ and D–D′ the base of the Mississippian or the Antrim shale has been used as a datum plane.

Section A–A′ (Fig. 3) brings out the similar thickness of the Salina salt-bearing sections in the eastern and central part of the state. It shows a progressive thickening of the Detroit River to the northwest and an increasing amount of dolomite and anhydrite in all the Devonian sediments. The position of the salt beds

FIG. 2. Map showing location of wells in sections A, B, C and D

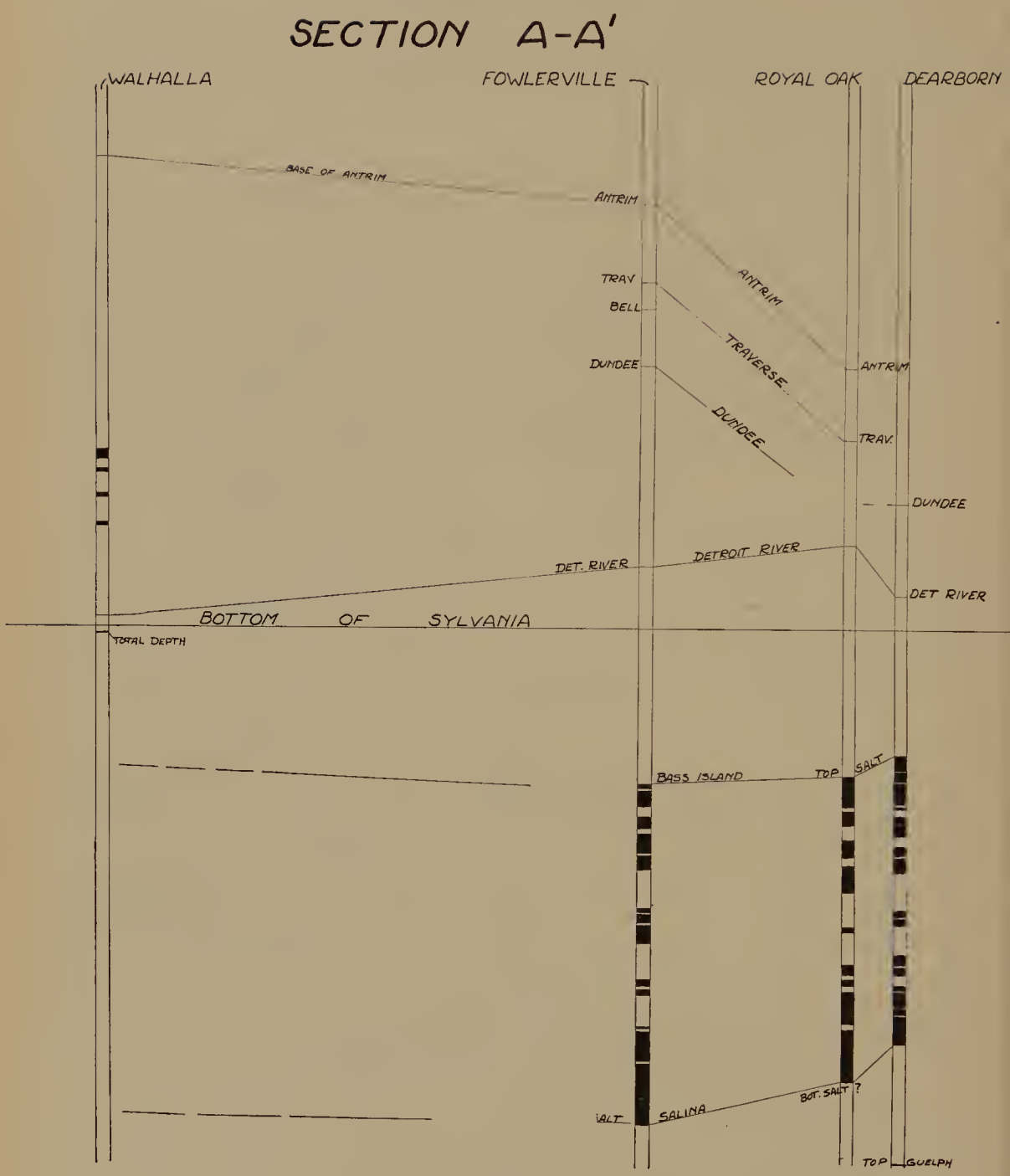

SECTION A-A'
WALHALLA
FOWLERVILLE
ROYAL OAK
DEARBORN
BASE OF ANTRIM
ANTRIM
TRAV
BELL
DUNDEE
ANTRIM
TRAVERSE
DUNDEE
ANTRIM
TRAV.
DUNDEE
DET. RIVER
DETROIT RIVER
DET RIVER
BOTTOM OF SYLVANIA
TOTAL DEPTH
BASS ISLAND
TOP SALT
SALT
SALINA
BOT. SALT ?
TOP GUELPH

FIG. 3

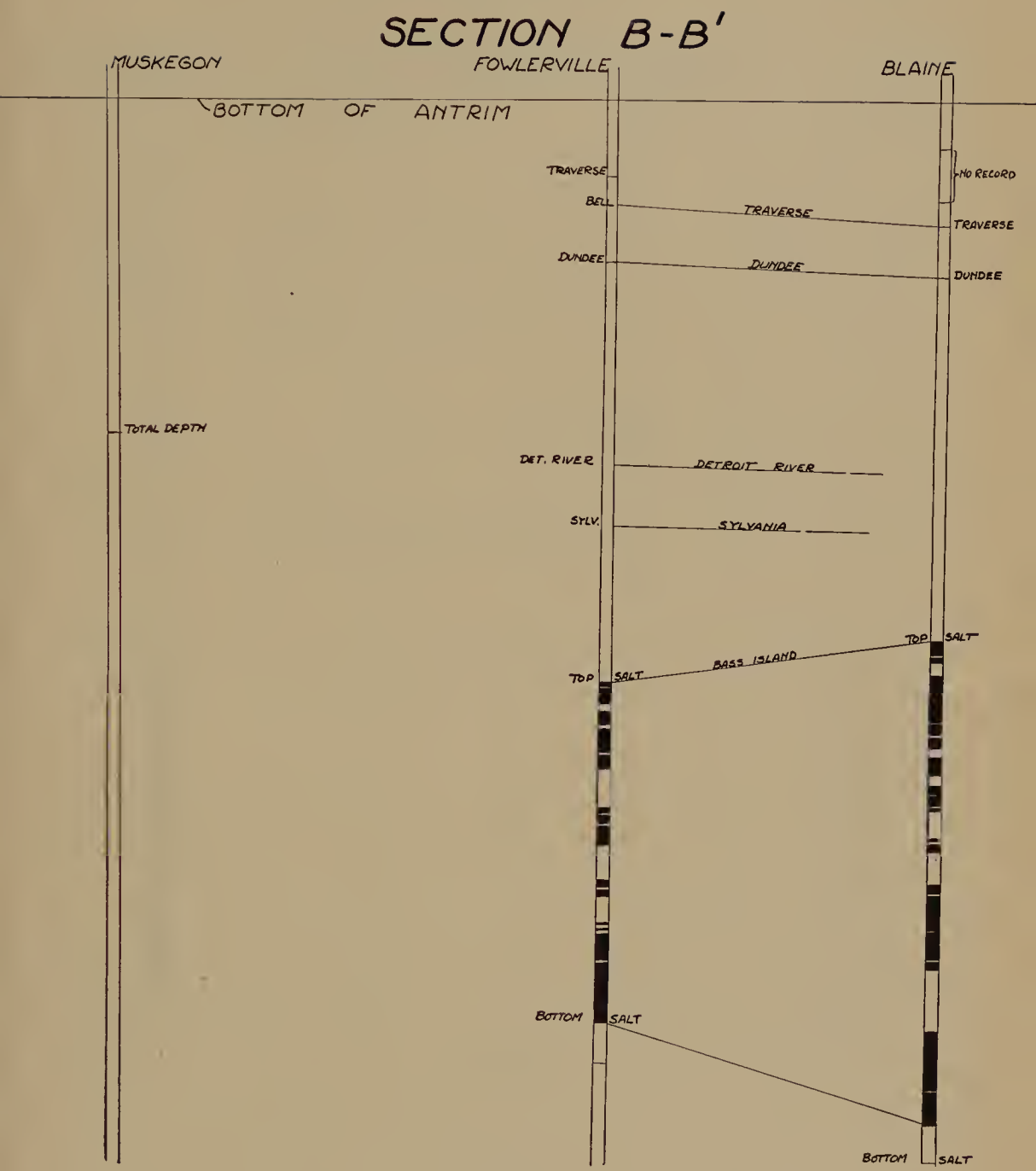

SECTION B-B'
MUSKEGON
FOWLERVILLE
BLAINE
BOTTOM OF ANTRIM
TRAVERSE
NO RECORD
BELL
TRAVERSE
TRAVERSE
DUNDEE
DUNDEE
DUNDEE
TOTAL DEPTH
DET. RIVER
DETROIT RIVER
SYLV.
SYLVANIA
TOP
SALT
TOP
SALT
BASS ISLAND
BOTTOM
SALT
BOTTOM
SALT

FIG. 4

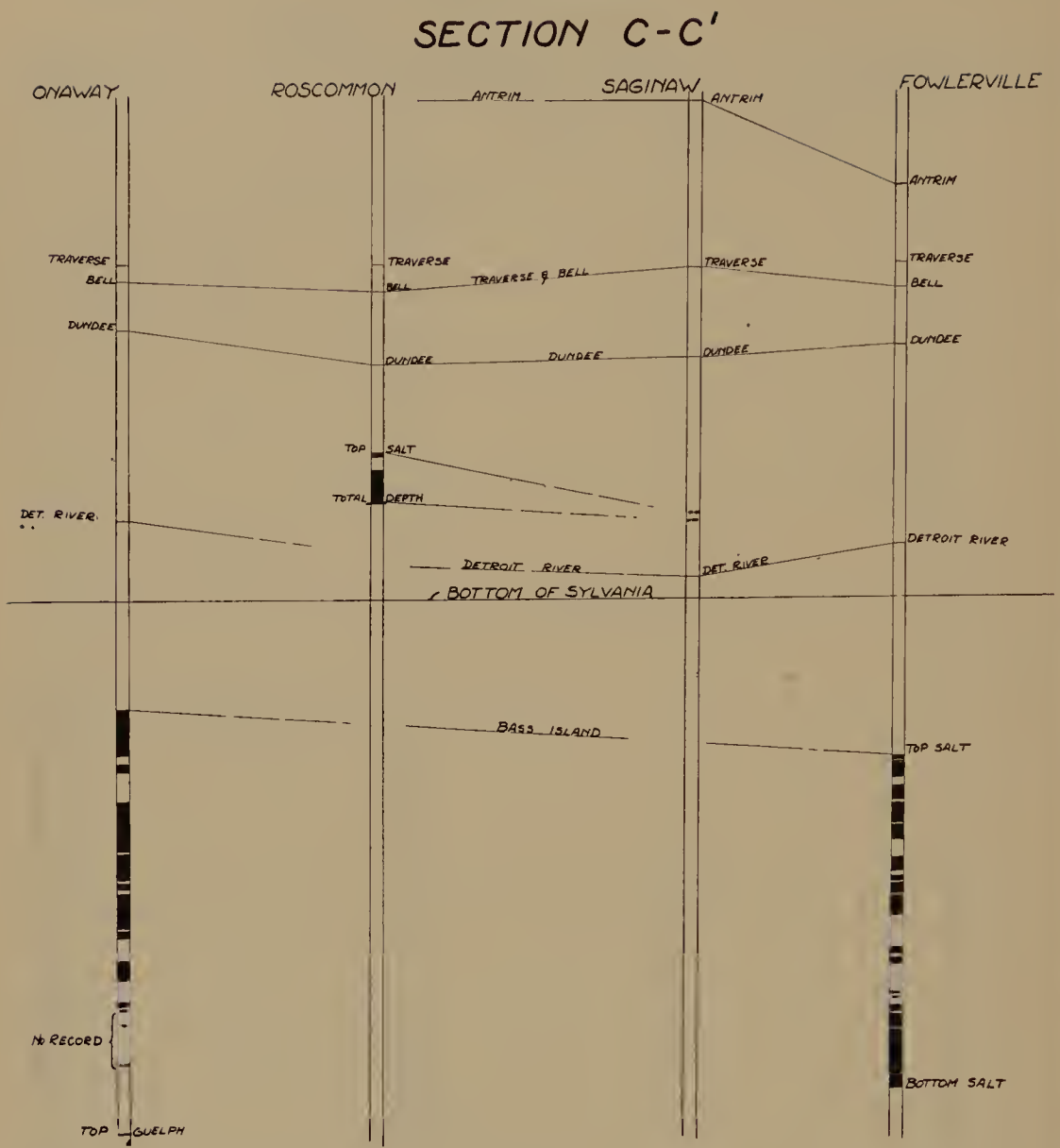

SECTION C-C'
ONAWAY
ROSCOMMON
SAGINAW
FOWLERVILLE
ANTRIM
ANTRIM
ANTRIM
TRAVERSE
BELL
TRAVERSE
BELL
TRAVERSE & BELL
TRAVERSE
BELL
TRAVERSE
DUNDEE
DUNDEE
DUNDEE
DUNDEE
DUNDEE
TOP SALT
TOTAL DEPTH
DET. RIVER
DETROIT RIVER
DET. RIVER
DETROIT RIVER
BOTTOM OF SYLVANIA
BASS ISLAND
TOP SALT
No RECORD
TOP GUELPH
BOTTOM SALT

FIG. 5

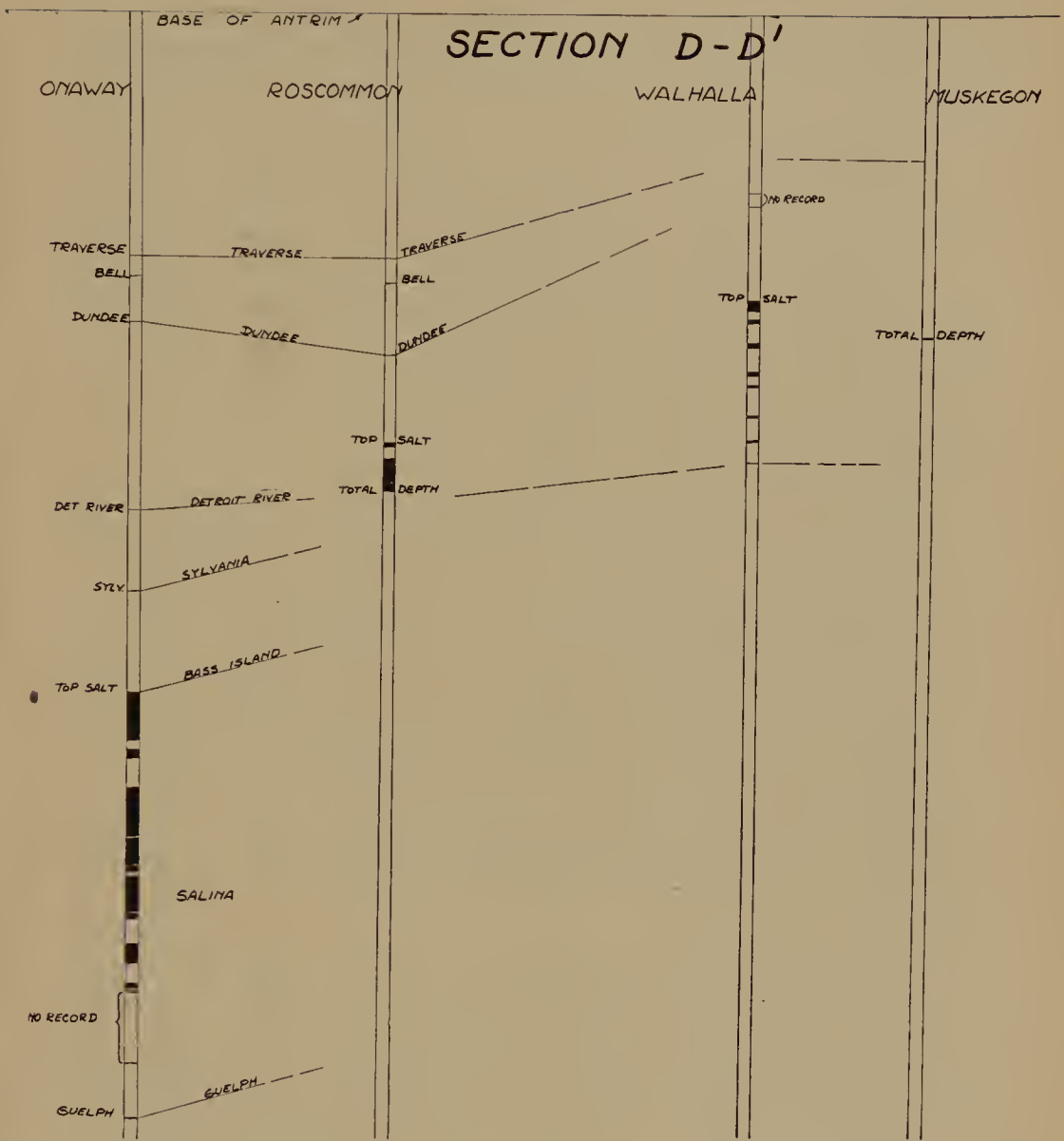

SECTION D-D'
BASE OF ANTRIM
ONAWAY
ROSCOMMON
WALHALLA
MUSKEGON
NO RECORD
TRAVERSE
TRAVERSE
TRAVERSE
BELL
BELL
TOP SALT
DUNDEE
DUNDEE
DUNDEE
TOTAL DEPTH
TOP SALT
TOTAL DEPTH
DET RIVER
DETROIT RIVER
SYLV
SYLVANIA
TOP SALT
BASS ISLAND
SALINA
NO RECORD
GUELPH
GUELPH

FIG. 6

above the Sylvania is demonstrated on the western side of the state. The close correspondence of intervals and lithologic comparisons evidence the Detroit River age of the upper salt-bearing beds.

Section B–B′ (Fig. 4) is not quite so significant. It would suggest, however, that the deeper part of the Salina salt basin existed to the north of Livingston County. Prior to 1928 the well at Blaine, St. Clair County, has shown the greatest thickness of salt of any well in the state. Another possibility exhibited by this section is that the salt-bearing Salina rocks have not yet been penetrated at Muskegon and the anhydrite beds should be correlated with the Detroit River salt-bearing rocks in Mason and Manistee counties.

Section C–C′ (Fig. 5) illustrates the similarity in thickness of the Salina salt-bearing beds on the north and south sides of the Michigan basin. The salt at Roscommon seems to correspond rather closely in stratigraphic position to the salty beds at Saginaw. The northern and southern limits of the Detroit River salt series are roughly defined by this section. A corresponding thick section of Detroit River rocks is found at both Saginaw and Fowlerville.

Section D–D′ (Fig. 6) exhibits the southwestward change from limestones to dolomites in the Devonian section. Dolomites appear higher and higher in the series as one progresses to the southwest. The southwestern limits of the Detroit River salt-bearing beds seem to be outlined as being in the vicinity of Muskegon.

Many will question a correlation by strictly lithologic methods with no supporting paleontologic evidence. The use of well sections necessitates frequent discrepancies of measurement and interpretation which enter into their construction. In numerous cases samples are not furnished and only the record of formations as logged by a driller can be used. The inaccuracies resulting can be eliminated only by referring to a large number of wells and by comparing them from every possible angle. In this way many significant facts may be indicated and later interpretations of importance in stratigraphic correlation may result.

The Silurian-Devonian contact was for a long time a battle

ground in the correlation of Michigan rocks. The present classification of the Monroe was reached by Lane, Prosser and Sherzer,[4] and Grabau and Carman[5] added further reasons for placing the Detroit River and Sylvania in the Devonian. At the present time the classification of Detroit River and Sylvania as Devonian is accepted by most geologists, although the distinct Silurian affinities of the Lucas fauna seem not to be refuted. Apparently the paleontologic and the stratigraphic evidence is in conflict.

Years ago Lane[6] recognized the existence of those conditions in the Upper Monroe which might lead to salt formation. He speaks of three distinct periods of desiccation which would be referred to our Salina, Bass Island and Detroit River beds. Cook[7] stated that some of the rock salt deposit might be of Monroe age and suggested the origin of the Monroe brines from lakes which did not entirely disappear after the deposition of the Salina salt.

The Detroit River age of the upper salt beds of the western and the north central parts of the southern peninsula seems to be fairly well established by the correlation of well sections. If the Devonian equivalency of the Detroit River is to be maintained, we must offer some sort of explanation for the occurrence of conditions causing the formation of rock salt. The arid climate of the Salina no doubt existed through much of the early Devonian. Lane[8] accounted for the cessation of salt making in the Lower Monroe by either a change of climate or crustal shifting opening an outlet. Present evidence makes the latter alternative seem the more plausible. He also stated[9] that the Upper Monroe seemed to have been deposited in a narrow trough. We know now from the abnormal thickness of Detroit River at Saginaw and Fowlerville that this trough probably had a northeast extension which permitted the entrance of Devonian fauna. Detroit River time in Michigan apparently had two phases, a seaward dolomite-

[4] *Bull. Geol. Soc. America*, 19: 553–556.

[5] Carman, J. E., "The Monroe Division of Rocks in Ohio," *Journ. Geol.*, 35 (1927): 481–506.

[6] Lane, A. C., *Geological Survey of Michigan*, 5: 28.

[7] Cook, C. W., *op. cit.*, p. 81.

[8] Lane, A. C., p. 62 of work cited in note 1.

[9] *Ibid.*, p. 67.

producing phase on the borders and a landward salt-producing phase in the central part of the state. Devonian life probably did not migrate far into the center of the state; when the outlet to the trough was temporarily closed the remnants of the Silurian facies were brought back from the salt-producing basin. This would account for the Silurian aspect of the Lucas fauna.

To fulfill the requirements of this explanation, the most recent theory of salt deposition postulated by Alling [10] would be applicable. His final statement is "that the salt must have originated by *evaporation* under *desert* conditions behind a *bar* or *barrier* separating the basin or basins from the sea." He believes that nearly all salt was deposited in desert basin lakes analogous to our playa lakes of today. The source of evaporating brines may have been either rivers carrying salt in solution or incursions of sea water dammed back by some sort of bar or barrier.

In applying this theory to the Michigan basin it would be possible for the salines forming the Detroit River salt series to be derived either from stream erosion of earlier rocks or from incursions of sea water from the deeper dolomite-depositing troughs. The limits of the basin in which the Devonian rock salt beds were deposited are roughly outlined by the Onaway, Saginaw and Muskegon wells. Figure 7 shows by inclined lines the approximate extent of this basin as determined from present wells, and future drilling will more or less modify the shape of its outline. The approximate center seems to correspond rather closely with the center of the Salina basin as sketched by Robinson. [11] The limits of the Salina salt basin are indicated by the contrasting inclined lines in Figure 7.

As a final conclusion, it is evident that two important salt-depositing periods are represented in the Michigan basin. The earliest of these can be referred to Salina age and is equivalent to the Camillus of the New York section. The later less important salt-producing period is represented by a smaller basin within the same general area. The age of this upper salt is more or less con-

[10] Alling, H. L., *op. cit.*, p. 125.

[11] Robinson, W. I., *Publ. 35, Geol. Ser. 29, Mich. Geol. and Biol. Surv.*, p. 36.

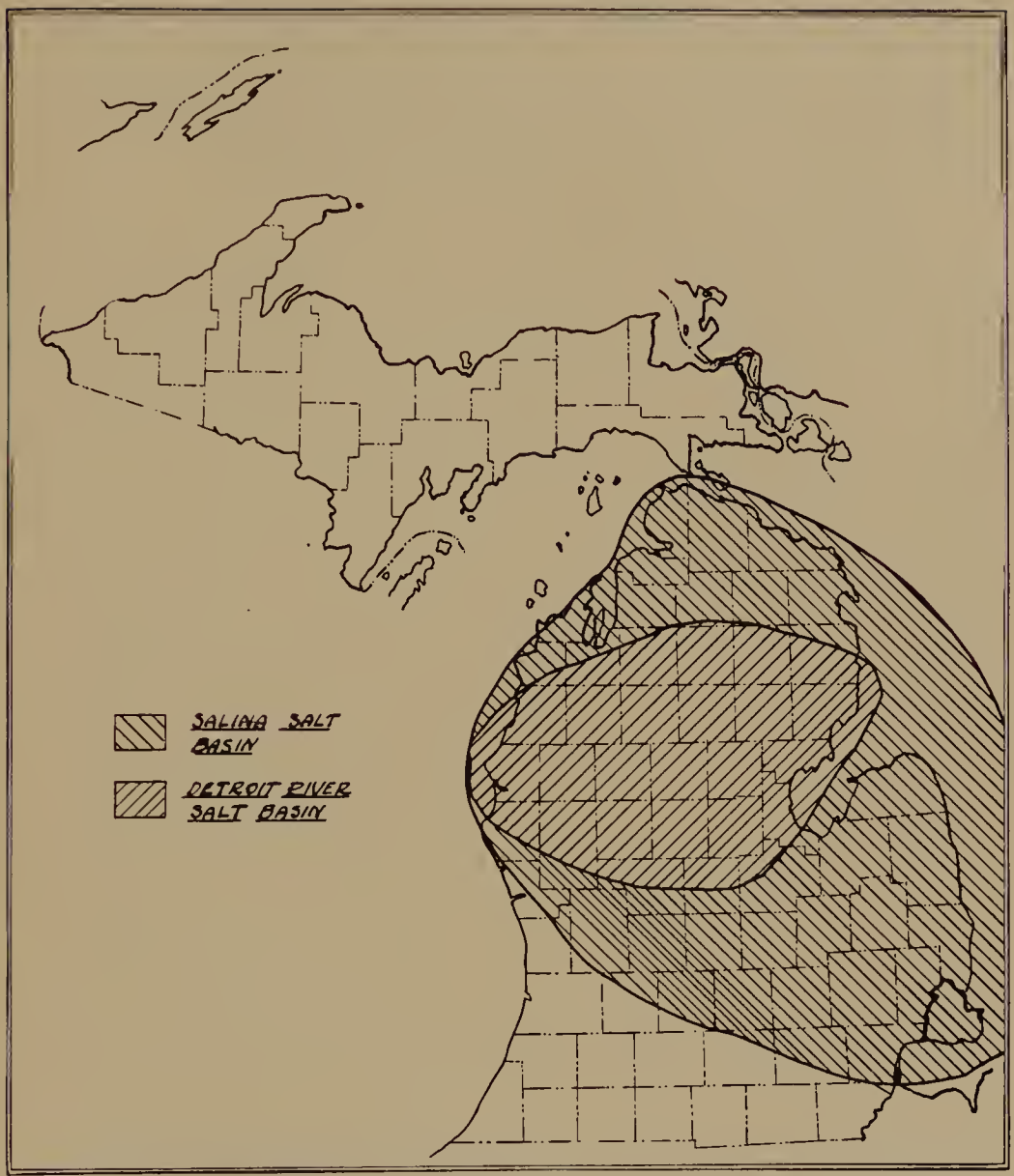


FIG. 7. Approximate areas of the Detroit River and Salina salt basins

jectural, but by stratigraphic sequence and lithologic correlation it compares very closely with the Detroit River formation or Upper Monroe. This would indicate that salt-forming conditions prevailed not only in the Silurian, but also during Devonian times in the central part of the southern peninsula of Michigan.

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NEW FACTS ON THE NIAGARA GORGE

FRANK BURSLEY TAYLOR

IN THE study of so great a problem as the recession of the Falls of Niagara and the making of the gorge, one should not be surprised if new facts and interpretations are brought forth after a lapse of sixteen years. It is only in this way that science and knowledge make progress.

In a recent paper entitled "The Age of the Upper Great Gorge of Niagara River," W. A. Johnston, of the Canadian Geological Survey, presents some new and important facts,[1] and suggests new interpretations of gorge history. The new facts relate mainly to the gorge in the vicinity of the two railroad bridges, comprising the upper part of the gorge of the Whirlpool rapids and the lower part of the Upper Great gorge. Johnston calls attention to exploratory borings made by the Michigan Central Railroad Company at the Cantilever bridge over the upper end of the gorge of the Whirlpool rapids. Johnston's sketch map showing the location of the borings is here reproduced as Figure 8. The sketch shows nineteen borings, eight on the west side of the river and eleven on the east side, and it shows the depths and the structures penetrated, and also the depth of the river under the bridge.

As compared with the Upper Great gorge, which extends from a point a little above the railroad bridges to the Horseshoe Fall, the gorge of the Whirlpool rapids is narrow and shallow. Much difference of opinion has been expressed in the past concerning the origin of this section of the gorge. The basin of the Whirlpool is universally recognized as part of an older gorge not made by the modern, postglacial river, but by a great river which did its work *before* the advent of the last or Wisconsin ice-sheet. The result was that this older gorge was completely filled and obliter-

[1] *Transactions of the Royal Society of Canada*, Section IV, 1928, pp. 13–29.

ated mainly with glacial drift swept into it by the ice-sheet, but also in part by stratified sand and clay deposited in lake waters which invaded the gorge, when the advancing ice-sheet obstructed northeastward and eastward drainage in the St. Lawrence and Mohawk valleys. The buried valley, commonly known as the St. David gorge, extends more than two miles northwest from the Whirlpool to a well-marked reëntrant in the great escarpment south of the hamlet of St. David. For about a mile in this re-

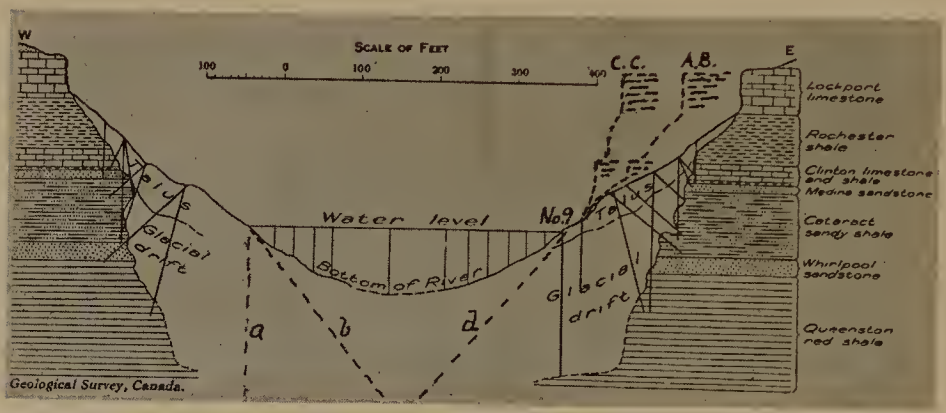

Fig. 8. Cross-section of Niagara gorge at Michigan Central (Cantilever) Railway bridge. After A. W. Johnston, with a few additions. *A B*, approximate place and profile of cliff at Arch bridge; *C C*, approximate place and profile of cliff at steepest place, 300 feet north of Arch bridge (about at *c c* in Fig. 10). Profile under river is unknown, but certainly shallower and narrower than that shown by Johnston at Cantilever bridge. *a*, *b*, *d*, places where additional borings would add greatly to knowledge of Cantilever gorge

entrant the rock wall of the escarpment is absent and the only filling is glacial drift. This is at the mouth of the St. David gorge.[2]

Several of the earlier writers held that the St. David gorge was made in preglacial time, but there is evidence that it was

[2] See Figure 9. A buried river channel extends north and northeast across the lower Ontario plain from the mouth of the St. David to the west bank of Niagara River about two miles south of Niagara-on-the-Lake. This was first described by Josiah T. Scovell, "Another Old Channel of Niagara River," *American Geologist*, Vol. 3, 1889; also in *Proc. Am. Assn. Adv. Sci.*, Vol. 39, 1891. Described later (1907) by J. W. Spencer in work referred to in footnote 4; more recently by Glenn C. Forrester, *The Falls of Niagara* (New York, 1928, 154 pages).

made in the last interglacial epoch. It was claimed that it was made by a relatively small river, and that its valley was widened toward the north by weathering. On this view, the gorge of the Whirlpool rapids is the upper part of this valley which had not been measurably widened. From the Whirlpool north, there is no widening, excepting at the mouth, and this is strikingly characteristic of glacial action, for the salient on the west side received the full force of the oncoming ice, and its upper layers were torn away. The lower layers (Whirlpool sandstone, and others) were not measurably modified; neither was the eastern salient, even its upper layers, for it stood in a protected position. In fact, the main characteristics of the St. David gorge are precisely those of the present Upper Great gorge — wide and deep — and indicate the work of a great vertical cataract, with volume as great as that of the present river.

This history of the St. David gorge was fully recognized in the *Niagara Folio*,[3] but it was then thought that the interglacial gorge ended at the south side of the Whirlpool, except, perhaps, for a small, narrow gorge or ravine of slightly later date, extending a few hundred feet toward the southeast. The walls of the Whirlpool are broken through where the river comes in, and again where it goes out, and in both places the gorge is narrower both at the top and at the water surface, and reefs obstruct both openings, causing short rapids. The reef-rock is mainly the Whirlpool sandstone, which is here just at the surface of the water.

When the *Niagara Folio* was published, the best interpretation which then seemed available pictured the present or postglacial river as cutting its gorge from the escarpment south of Lewiston to the Whirlpool, where, purely by accident, it uncovered and cut into the upper end of the buried St. David gorge. The great river cleared the glacial deposits out of the Whirlpool basin very quickly, and then was supposed to have resumed gorge-making at the southeast side of the Whirlpool. It was believed that the contracted width and the reef between the Whirlpool and the Eddy basin showed that, when the great cataract of the present

[3] *U. S. Geological Survey, Niagara Folio*, Folio No. 190, p. 17, including Figure 7. 1913.

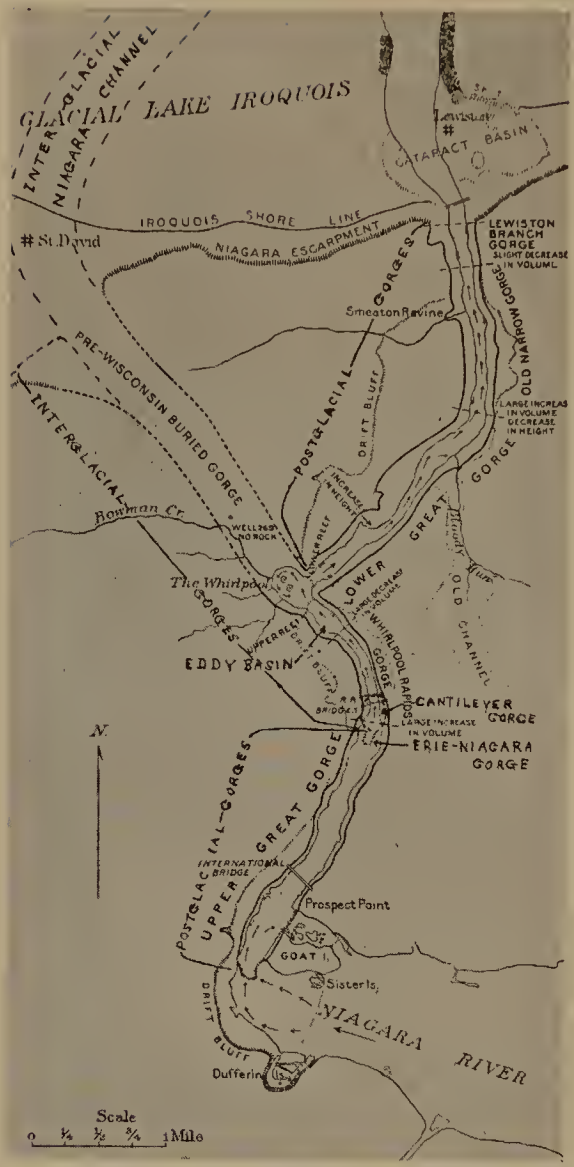

FIG. 9. Sketch plan of Niagara gorge (from the *Niagara Folio*, p. 21, with certain modifications). Shows places of Cantilever and Erie-Niagara gorge sections, and also the distribution of the interglacial and post-glacial sections

river resumed gorge-making, it did not begin just where the older, interglacial cataract of the St. David gorge left off. Instead, it plunged either from an unbroken older ledge a few hundred feet to the southeast, near what is now the center of the Eddy basin, or else into a short section of older narrow gorge (*Niagara Folio*, Figure 7), and for this reason failed to remove the reef. But the great cataract had only fairly begun work in the making of the relatively wide, deep Eddy basin, when a sharp halt was called, and 85 per cent of the water of the falls was taken away. This was due to the retreat of the ice-front in the far north. During the making of the Lower Great gorge, extending from the bend at Niagara University up to the south side of the Eddy basin, the front of the ice-sheet had continued its slow northward retreat, until it lay in the Mattawa and Ottawa valleys east of North Bay, Ontario. Finally, the water of the

upper lakes broke through past this dam, establishing a new outlet then lower than that at Port Huron, and escaped down these valleys to the sea, leaving the falls at the Eddy basin with only the discharge of Lake Erie or about 15 per cent of the river at normal full volume. With this largely reduced volume, the falls were believed to have made the gorge of the Whirlpool rapids to the point of expansion and increased depth close above the railroad bridges. This is in substance the account of the origin of the Whirlpool, the Eddy basin and the gorge of the Whirlpool rapids as given in the *Niagara Folio* in 1913. See Figure 9.

The facts presented by Johnston evidently reveal a different history, and necessitate a revision of these conclusions, but not altogether on the lines suggested by him, for there are a number of other important facts which have a strong bearing on problems relating to the history of this part of the gorge.

The record of borings shows clearly that a deep and wide gorge was made in the bed rock under the Cantilever bridge, and that this gorge was afterwards filled with glacial drift, including many boulders and also toward the bottom a few layers of sand and gravel partly stratified. All of this was later covered over and masked by talus from the cliffs. The present width of the water surface under the bridge is about 400 feet, but if all the talus and drift at the sides were removed the width would be about 700 feet. This shows that the buried gorge seen in Johnston's cross-section is the work of a great cataract, not a small one.

Another significant fact, which was noticed by Spencer many years ago, is the steepness of the buried rock wall on the east side as compared with the weathered cliffs in most other parts of the gorge.[4] But Spencer was drawing all of his inferences from one boring, No. 9, the first hole on the east side. Nine later borings on that side show that the rock wall is considerably steeper than he supposed. These facts seem to show that a short section of gorge lying under the Cantilever bridge, and extending about 300 feet

[4] Spencer, J. W., *Evolution of the Falls of Niagara*, Department of Mines, Geological Survey Branch (Ottawa, 1907), 470 pages. For buried old river channel in plain north of St. David, see Chapter XI, pages 137–139; for borings at Cantilever bridge, see Chapter XII, especially pages 147 ff.

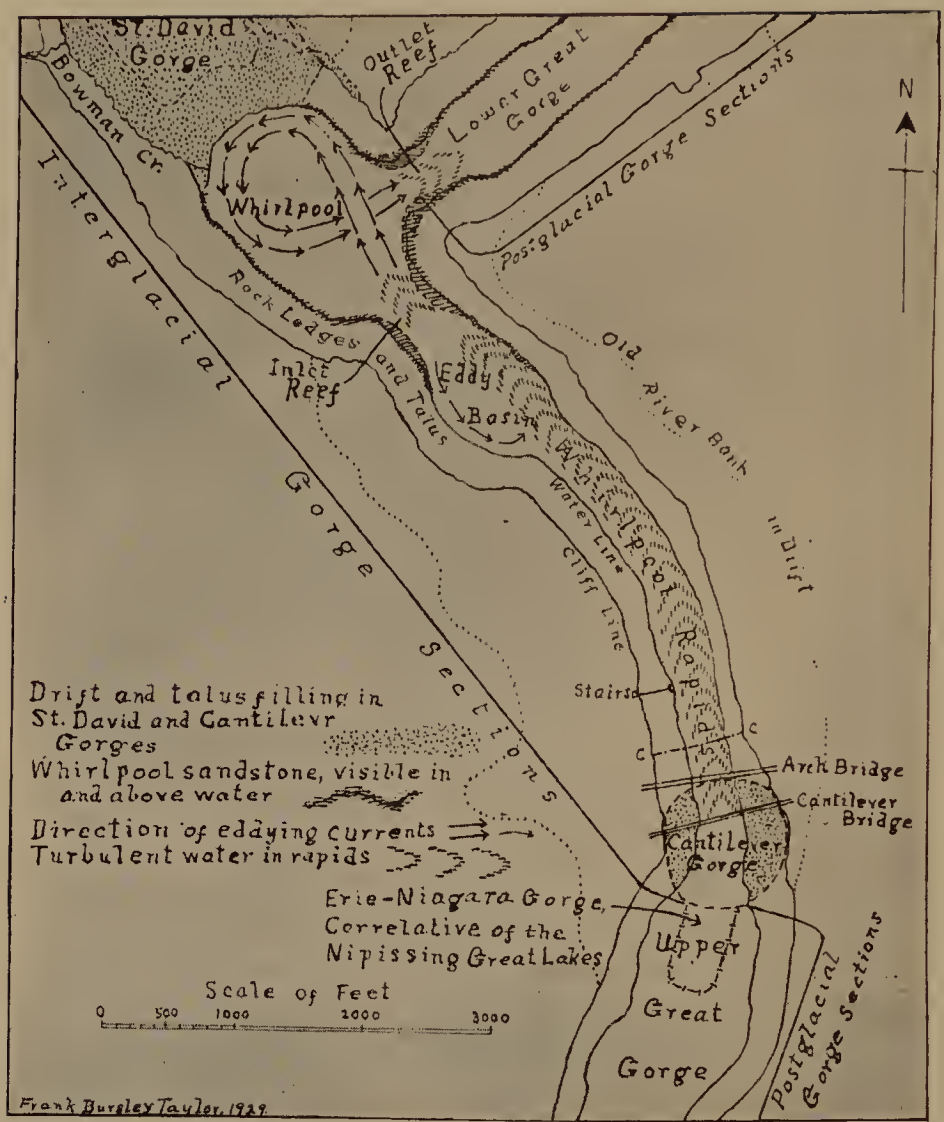

FIG. 10. Sketch of gorge sections between the Lower and Upper Great gorges. Shows in more detail places and approximate dimensions of Cantilever and Erie-Niagara gorges; outcroppings of Whirlpool sandstone, with reefs at inlet and outlet; underturned loop of the river in the Whirlpool; return current in Eddy basin, and parts of interglacial and postglacial gorge sections

north of it, and at least 500 or 600 feet south of it, was made by a large-volume cataract just before the oncoming of the last or Wisconsin ice-sheet. For a brief time, lake waters entered in

advance of the ice and deposited stratified sand and clay, but the ice-sheet soon arrived and buried the whole district under its drift. For convenience, this short section may be called the Cantilever gorge.

Thus, the amended gorge history seems to show that in the interglacial epoch preceding the Wisconsin ice-sheet, a great cataract — in fact, a real interglacial Niagara — made the St. David gorge and the Eddy basin, and then, when the great interglacial cataract was working at the south side of the Eddy basin, the volume of the river was suddenly greatly reduced, and a much smaller cataract was left to make the narrow, shallow gorge of the Whirlpool rapids. When the small cataract had worked back about to the Cantilever bridge, the full volume of the interglacial Niagara came back and began the making of the deeper, wider Cantilever section. This new section appears to be the exact interglacial counterpart of the present postglacial Upper Great gorge. But the work of the great interglacial cataract in this section was soon stopped by the arrival of the advancing Wisconsin ice-sheet. Then, probably, for 50,000 or 60,000 years, the whole Niagara region lay deeply buried under the ice. But when the front of this ice-sheet had retreated so far that it began to uncover the Niagara region north of Buffalo, the whole drama of lake, river and cataract interplay began to be reënacted. The postglacial Niagara was able to appropriate only a part of the buried interglacial gorge, because the escarpment moraine on the top of the escarpment south of St. David stood nearly 60 feet higher than the passage from the Whirlpool to the escarpment south of Lewiston. Thus, the modern river had to cut its gorge out of the solid rock from the cliff south of Lewiston to the Whirlpool, but from the Whirlpool to the south side of the Cantilever section it had only to remove the filling of glacial drift.[5] (See Fig. 10.) The modern river seems to have worked with full volume from the

[5] In an earlier paper, the writer has discussed certain evidences which seem to indicate a remarkable recurrence of Great-Lake and Niagrara conditions and history in three successive deglaciation or warm-period epochs, two of them interglacial and the last one postglacial. See "Evidence of Recurrent Depression and Resilience in the Region of the Great Lakes," *Pap. Mich. Acad. Sci., Arts and Letters*, 7 (1926): 135–143.

bend at Niagara University to the Whirlpool, and it would seem to have continued with the same volume in clearing the glacial drift at least out of the Whirlpool, the Eddy basin and perhaps part of the gorge of the Whirlpool rapids, but when it came to the buried Cantilever section, with its much greater depth and width, it cleared only a relatively narrow passage, leaving a large part of the filling unmoved, as is shown in Johnston's cross-section.

The last contact of the Wisconsin ice-sheet with the Great Lakes was when its front rested in the Mattawa Valley east of North Bay, Ontario, and in the Ottawa Valley below the town of Mattawa. When this dam broke, the discharge of the upper three Great Lakes rushed through to the east past North Bay and down the Mattawa and Ottawa valleys to the sea, thus establishing the last or non-glacial stage of the postglacial lakes, known as the Nipissing Great Lakes.[6] The isobase of North Bay runs north about 68 degrees west, and the Nipissing beach on and near this line on the northern shore of Lake Superior is probably the most strongly developed old shore-line in the Great Lakes region, being even stronger than the Algonquin beach on the isobase of Kirkfield. Naturally, its great strength was taken to indicate a relatively long duration for this lake stage, and it was thought to be the correlative of the gorge of the Whirlpool rapids, made by the Erie-Niagara or small-volume falls. But since the making of this section of the gorge is now relegated to the interglacial epoch, we must look for the gorge correlative of this postglacial lake stage somewhere else. If the outlet at North Bay had opened when the river began to clear the drift out of the Cantilever section, then we should have a small-volume postglacial cataract resuming gorge-making at the place where a larger-volume interglacial cataract had left off, and this would probably be at least 500 or 600 feet south of the Cantilever bridge.

Much light on the rate of recession of a small-volume cataract under conditions like those of the Niagara region may be had by studying the American Fall. It is about 1000 feet wide, and falls from a remarkably level ledge of dolomite. Before the larger

[6] *U. S. Geological Survey, Monograph 53*, 1915, Chapter XXII, pp. 447–463.

diversions, the water near the crest averaged less than two feet in depth, and the deepest place was reported to be about three and one-half feet. According to United States engineers, the American Fall carries 4.83 per cent of the whole volume of the river.[7] The discharge of Lake Erie being about 15 per cent of the whole volume, is roughly about three times the volume of the American Fall. If the mean rate of recession of the Horseshoe Fall be taken as 4.5 feet per year, as stated in the *Niagara Folio*, it is estimated that it is about 1600 years since the Horseshoe and American Falls were united in one curved crest-line. If the rate be taken as 3.8 feet per year, as given by Johnston and Boyd, the time since the united crest would be nearer 1800 years. The record of surveys since Hall's first in 1841, nearly 90 years, reveals no measurable recession of the American Fall since that date. Indeed, a comparison of the crest-line of the American Fall with the cliff-line of Goat Island and of the gorge north of the fall shows that this cataract has not receded by a measurable amount beyond normal cliff recession due to weathering in the whole period since the two falls parted company. The sharp 40-foot reëntrant 120 feet north of Luna Island is a superficial feature. The American Fall is too feeble to do gorge-making at a rate that is certainly measurable in 90 years or even in 1600 or 1800 years. On the other hand, if the American Fall, with its present crest-line, had had three times its present volume, it seems quite probable that it would have accomplished something — at least a small amount — in gorge-making. Three times its present volume would be about equal to the discharge of Lake Erie alone, which constituted the small-volume Niagara during the time of the Nipissing Great Lakes. If with the same volume the crest-line were narrower, the water on it would be deeper and would tend to cause more rapid gorge-making. So far as known, the geological conditions in the Niagara district have always tended to produce wide, flat crest-lines for the falls, to this extent favoring slow gorge-making, especially at times when the volume of the river was relatively small.

[7] "The Preservation of Niagara Falls," *Senate Document No. 105*, Washington, 1911, p. 13.

Before the greater diversions, the upper three lakes contributed about 6.6 times as much water to Niagara River as did Lake Erie, and considering the influence of a wide, flat crest in thinning the water of the fall, especially where a small-volume cataract immediately succeeds a large-volume cataract, it would seem certain that the rate of gorge-making would diminish in a higher ratio than the difference of volume. Heretofore, the writer has assumed tentatively that the small-volume or Erie-Niagara River would tend to make a gorge at a rate somewhere near one tenth of the rate of the full-volume river. Spencer had earlier adopted the same rate. At 4.5 feet per year, as stated in the *Niagara Folio* for the Horseshoe Fall, the rate for the Erie-Niagara or small-volume cataract would be about 0.45 foot per year or 800 or 900 feet of gorge in about 2000 years. If the rate were less, the time for making a given length of gorge would be proportionally longer.

If a large-volume Niagara made the Cantilever gorge section in the last interglacial epoch, there is no place for a gorge correlative of the Nipissing Great Lakes, except immediately south of the Cantilever section. A gorge section of this description, but only a short one, must have been made, and the only place for it is between the interglacial Cantilever gorge and the present or postglacial Upper Great gorge. It seems probable that the opening of the postglacial North Bay outlet occurred when the falls were at or near the Whirlpool, and that it was the Erie-Niagara small-volume cataract which resumed gorge-making at the south side of the Cantilever section. If it made 600 or 800 feet of narrow, shallow gorge in a period of 2000 or 2500 years before the North Bay outlet was closed, this record would seem to agree with the evidence now in hand.

Theoretically, when a small-volume cataract makes a gorge which is naturally narrow and shallow as compared with the gorge of a cataract with more than six times its volume, and then is followed by a large-volume cataract of the proportions named, the larger river literally overwhelms the small gorge. It not only falls into it at the end, where the smaller river was last working, but advances over the flat floor and runs far forward on both sides so as to fall in mainly at the sides, thus forming a U-shaped

cataract. If the small gorge be not too long, the greater river will widen it and eventually obliterate it entirely. So it was, as the writer conceives, with the small gorge extending south from the Cantilever section. It was not so long but that it was completely wiped out by the succeeding great cataract, when it began to make the Upper Great gorge. Thus, a gorge correlative of the Nipissing Great Lakes was probably made and later destroyed.

All this, of course, makes a considerable difference in the estimate of time since the modern or postglacial cataract began to make the gorge at the cliff south of Lewiston. Space forbids a detailed discussion of this phase of the problem, but it is evident that the former estimate given in the *Niagara Folio* of 20,000 to 30,000 years (mean of 25,000) must be somewhat reduced, because that estimate was based on the idea that the Eddy basin and the gorge of the Whirlpool rapids were made by the postglacial river, whereas we now see, thanks to the Michigan Central Railroad and to Dr. Johnston, that the postglacial river had only to clear out glacial drift and other loose material from the Whirlpool to the south side of the Cantilever section. The writer formerly allowed 6000 or 7000 years for the making of the Eddy basin and the gorge of the Whirlpool rapids, but now 2000 or 2500 years seems enough; and this takes at least 1000 feet from the previous measure of the length of the Upper Great gorge. On this basis the time for the making of the postglacial gorge seems nearer to 18,000 or 20,000 years than the former estimate of 25,000 years. These estimates are based on the former determination of rate, 4.5 feet per year, rather than on the slower rate, 3.8 feet per year, as found by Johnston and Boyd.[8] The phototopographic method of survey used by Boyd in 1927 has many advantages, but his computation of the rate of recession seems unsatisfactory. The method of perpendiculars to the crest-lines yields results that are interesting, but, unless the arbitrary "apex zone" is severely restricted, does not give the true rate of recession. With increasing departure from parallelism with the main axis of recession,

[8] Boyd, W. H., "A New Method of Determining the Rate of Recession of Niagara Falls," *Transactions of the Royal Society of Canada*, Section IV, March, 1928, pp. 1–12.

more and more of the *widening* component enters in and yields a misleading result. For example, in Plate VIII of his paper, Boyd shows lines on the east crest which are perpendicular not only to the crest-line, but also to the central axis of recession. Such lines show cliff recession, but not true cataract recession. It seems doubtful whether the rate of 3.8 feet per year is nearer the truth than 4.5 feet. The writer is not disposed to accept the arguments made by Johnston and Boyd for the slower rate.

A valuable check on the age of the Upper Great gorge is found in the determination of the rate of the tilting of the land by uplift in the north in the central part of the lake region. Dr. Gilbert studied the gage readings at stations on Lakes Michigan and Huron for the period 1875 to 1895, and Mr. Moore carried the same study to 1925. The place of the hinge-line or zero isobase for recent and present tilting of the land had not been fully determined when Gilbert wrote, and was not considered by him. But after correction for this omission, his results and Moore's are remarkably accordant, and when extended to North Bay, Ontario, and applied to the present elevation of the outlet at that place, show that that outlet was closed by uplift about 3000 years ago, being now about 104 feet higher in altitude than the outlet at Port Huron. The same rate of tilting applied to Lake Erie and to the outlet at Buffalo proves to be in very close accord with the result obtained for Lakes Michigan and Huron, and is strongly supported by well-marked evidences of recent drowning on the middle and western shores of Lake Erie.[9]

The buried Cantilever gorge shown in Johnston's cross-section is a truly remarkable feature. That it is restricted to a relatively small distance both north and south from the bridge seems clear. Its limit to the south is not definitely known and is probably not determinable, but to the north it seems well defined. Except for some of the top layers on the east side, the Cantilever gorge cer-

[9] Taylor, F. B., "The Present and Recent Rate of Land-Tilting in the Region of the Great Lakes," *Pap. Mich. Acad. Sci., Arts and Letters*, 7 (1926): 145–157, with references. Also, by the same author, "The Status of Lake Erie in Recent and Present Land-Tilting," *ibid.*, 10 (1928): 251–260, with references.

tainly does not extend northward beyond the Steel Arch bridge of the Grand Trunk Railroad, a distance of about 300 feet. The top layers are broken for about 300 feet farther, but lower down in the wall of the gorge the Clinton limestone, coming from the north, reaches to the piers of the Arch bridge. This is shown in photographs more clearly on the east side, but it reaches about to the same point on the west side also (Pl. XXXVIII, Fig. 1). From a point about 300 feet north of the Arch bridge, east side, the gorge wall for 1200 or 1300 feet to the north is almost vertical above the tracks of the electric railroad. As stated by Spencer and Johnston, this wall has evidently been undercut by the modern river and cliff recession has been active in recent centuries. Figure 2 of Plate XXXVIII is a picture of a great rock-fall from this cliff at a point 500 or 600 feet north of the Arch bridge. The profile of this cliff is sketched in on Johnston's cross-section. As Johnston says, the Whirlpool sandstone is evidently cut through in the lower part of the gorge of the Whirlpool rapids. But it does not follow from this that it is cut through in the upper part at or north of the Arch bridge. The river falls about 50 feet in the rapids, and the strata dip about 31 feet to the mile toward the south, the Whirlpool sandstone being last seen above water in the northern part of the Eddy basin. These two slants diverge southward; hence it must be something like 70 or 75 feet from the water surface under the Arch bridge down to this sandstone. It seems quite probable, therefore, that the Whirlpool sandstone is not broken through under the Arch bridge, nor for several hundred feet to the north. Spencer and Johnston are quite right, however, in emphasizing the part played by the huge boulders and blocks which choke the upper part of the rapids.

In the next to the last paragraph of his paper, Johnston questions the value of the earlier interpretations of the whole gorge between the Cantilever bridge and Lewiston. He says (p. 29):

> The age of Niagara gorge as a whole cannot be determined, for there is no way of telling the rate of formation of the Whirlpool rapids gorge nor of the lower gorge reaching from the Whirlpool to the escarpment at Queenston. It seems probable that a large part of the flow of the river was diverted during

the formation of the Whirlpool rapids gorge and probably at other times during the formation of the lower gorge, but the size of these diversions and the effect the reduced flow of water would have on the rate of formation of the gorge are not known.

Of course, the age of the gorge as a whole cannot be *accurately* determined, but this should not deter us from making the best possible tentative determinations. It seems to the writer that Dr. Johnston fails to see clearly the elements involved and the extreme simplicity of their relations. Throughout all of postglacial Niagara history, the element of river volume at the falls was always determined mainly by the interplay of two units, the upper three lakes constituting one unit, and Lake Erie the other. When these units were united, the falls always had full or 100 per cent volume, but when they were separated, the falls had only the discharge of Lake Erie or about 15 per cent, the other unit of about 85 per cent going somewhere else. At first, five streams fell over the escarpment from Lake Tonawanda. From a study of the now abandoned gorges and stream beds of the other four, it was estimated that the Lewiston branch carried about 25 per cent of the river. This, of course, was nothing more than a fairly well directed guess. At another time there was a discharge at Chicago, but it was small and short-lived. All the large changes of volume since Lake Tonawanda have been produced by the combination or separation of the two simple units mentioned above; and the conditions are thought to have been much the same in the interglacial epoch.

With Dr. Johnston's contribution of the Cantilever gorge, and with the linking of this section with the Whirlpool, the Eddy basin and the gorge of the Whirlpool rapids as being all of interglacial age, the status of these parts of the gorge seems cleared for better estimates of rate and time. The most obscure section now remaining is the Old Narrow gorge, extending from the south end of the Lewiston branch gorge up to the bend at Niagara University. But the relations in this part seem simple enough, for there is Kirkfield, Ontario, with its outlet carrying off the discharge of the larger unit, leaving only that of the smaller one for Niagara Falls. Of course, geological relations enter largely into

PLATE XXXVIII

FIG. 1

FIG. 2

the problem, but the structure is simple and nearly uniform throughout the whole gorge; only the capping hard layer is thinner toward Lewiston, and all the strata stand at slightly higher levels at the north.

It is fully realized that the effect of the amended history on the estimation of the time factor is not adequately discussed in this paper, but that can wait.

Fort Wayne, Indiana

EXPLANATION OF PLATE XXXVIII

Fig. 1. View of rock wall under Arch bridge. Note absence of talus and glacial drift in contrast to Johnston's cross-section at Cantilever bridge. Shows outcrops of Medina sandstone and red shale, with Clinton limestone above. (From J. W. Spencer, *Evolution of Falls of Niagara*, p. 157. 1907.)

Fig. 2. View of great rock-fall from east wall of gorge of Whirlpool rapids 500 or 600 feet north of Arch bridge. Note at right of center electric railroad track displaced by the fallen rock masses. View taken by the writer April 26, 1899.

BALZAC'S TECHNIQUE OF REAPPEARING CHARACTERS

ARTHUR G. CANFIELD

THE meaning of the term "technique of reappearing characters" will, no doubt, be clear to all readers of Balzac. One need not indeed be a reader of Balzac to be acquainted with examples of its use. Trollope applied the process in the novels of his cathedral series, and again in those of the parliamentary series. In the Leather-Stocking Tales of Cooper we meet old acquaintances from novel to novel. But no novelist has exploited the technique so systematically and with such calculating elaboration, throughout his whole work, as Balzac.

If we accept the interpretation commonly given a passage in Madame Surville's biographical sketch of her brother, this idea came to him like a revelation of genius and gave him the sought-for clue to the order and unity to be brought out of the chaos of projects and plans, the welter of ideas and of diverse human documents with which he was struggling. "It was," she says,[1] "about 1833, about the time of the publication of the *Médecin de campagne*, that he thought of binding together all his characters to form a complete society. The day when he was illumined by this idea was a great day for him. He rushed from the rue Cassini to the faubourg Poissonnière where I was then living. 'Salute me,' he cried jubilantly, 'for I am in a fair way to become a genius!' Then he unfolded his plan which intimidated him a little; however vast his mind was, to realize such a plan as that was going to take a long time."

It will be noticed that Madame Surville's language lacks absolute precision. One might urge that the general plan of the

[1] Laure Surville, *Balzac, sa vie et ses œuvres d'après sa correspondance*, ed. in octavo, Vol. 24 of the Calmann Lévy edition of the *Œuvres*, p. xxviii.

Comédie humaine, with its three categories of works, *Études de mœurs*, *Études philosophiques* and *Études analytiques*, and its division of the whole field of society, in the *Études de mœurs*, into its six regions of Private, Provincial, Parisian, Rural, Military and Political, might have promised to bind together the characters of the separate stories into a complete society, without the further device of reappearing characters. We know that such a plan did not exist from the beginning. We discover, it is true, very early the vague idea of a unity in his work. He looked upon his stories as having a certain relation to one another and interdependence. He warns Madame de Castries,[2] who had taken him to task because of his *Physiologie du mariage*, that she must not consider that work by itself, but should read it in connection with the *Scènes de la vie privée*, which were intended to supplement and complete it. But there was as yet no clear vision of the later architecture of his edifice, no principle of organization. For a while his plan did not seem to emerge from the duality implied in the two series of *Études de mœurs* and *Études philosophiques* between which his novels were distributed as they appeared, not always with evident reason.[3] The first outline of the plan of the edifice to be was given by Félix Davin, evidently inspired by Balzac himself, in introductions to the two series in progress. These introductions were inserted in the third edition of the stories which in the first two editions had borne the title "*Scènes de la vie privée*," and which were now rechristened "*Études de mœurs*." The first introduction, dated December, 1834, explains the scope of the three great divisions of studies, moral, philosophical and analytical; the second, dated April, 1835, sets forth the plan of the *Études de mœurs* and the meaning of that moral geography which charts the six great divisions of the various *Scènes: de la vie privée, de province, parisienne, de campagne, militaire* and *politique*. The only reference in these introductions to the feature of reappearing characters occurs in the second one,

[2] Balzac, *Correspondance*, ed. in octavo, p. 97.

[3] *La Recherche de l'absolu* was first printed in the *Scènes de la vie privée*, 3d ed., 1834. In the first edition of the *Comédie humaine* it was transferred to the *Études philosophiques*. Lovenjoul, p. 179.

in a brief passage which does not insist particularly on it as essential to his plan and purpose, but as definitely connected with it.[4]

But however we interpret the words of Madame Surville, whether or not we think that it was really this idea of reappearing characters that so excited Balzac on that occasion, there can be no question that it is, in a way, central to the plan and execution of the *Comédie humaine*, and that a study of that plan and execution cannot be divorced from a study of this device.

This study may be approached from two very different angles. One may examine the *Comédie humaine* as it stands and seek to discern and define just how this device is used, with what consistency the characters are true to themselves in their successive incarnations, what effects are sought, whether of the delineation of individual character or of social background, what light is thus thrown on the creative processes of Balzac's creative imagination. Or one may examine the subject historically, seeking the moment it entered into Balzac's method, tracing its progress and extension, observing how it reacts upon characters and stories already created, whether the earlier scenes are by it really made an integral part of the edifice or are only loosely and outwardly joined to it.

So far, it is from the first angle that the approach has been made. It is the purpose of this paper: (*a*) to suggest that this is to be regretted and that the results of study undertaken from this angle must remain restricted and incomplete until the subject has been examined from the historical side; (*b*) to indicate the kind and amount of work which this historical examination involves; and (*c*) to discuss two or three points with reference to the questions that the historical examination raises.

The only considerable treatment of Balzac's technique of reappearing characters that has yet appeared is Miss Ethel

[4] Spoelberch de Lovenjoul, *Histoire des œuvres de Balzac*, 3d ed., p. 56: "Un grand pas a été fait dernièrement. En voyant reparaître dans le Père Goriot quelques-uns des personnages déjà créés, le public a compris l'une des plus hardies intentions de l'auteur, celle de donner la vie et le mouvement à tout un monde fictif dont les personnages subsisteront peut-être encore, alors que la plus grande partie des modèles seronts morts et oubliés."

Preston's *Recherches sur la technique de Balzac.*[5] Miss Preston distinctly disclaims the intention of following the evolution of the procedure through the successive editions of Balzac's works. She prefers to study it in its complete development, in the state in which it was left by his final revision.[6] But in spite of this disclaimer she seems to feel that she cannot leave the historical aspect entirely out of view as if it did not exist. She gives all of her first chapter, very brief indeed, to the origin and extension of the system of reappearing characters. She even goes to the pains of making a statistical study of the number of reappearing characters in the various novels in the order of their chronological succession and presenting the results in a graph. This graph, she somewhat naïvely asserts, "nous donne immédiatement l'idée tres nette de la rapide et formidable extension de ce système." But a little reflection will show that such statistics are likely to be exceedingly fallacious. We can never know from statistics so compiled at just what moment a given character made his entry into the story in which he now appears. There are twenty-two reappearing characters in *Les Chouans*, written in 1828, at least five years before the earliest moment when he is ever supposed to have had the idea. If there are reappearing characters in the earlier novels of Balzac, their presence must be explained in one of three ways: (*a*) they were injected in some later edition quite without reference to any original intention; (*b*) names of characters originally introduced and already possessing a more or less defined physiognomy are changed and for the original ones names of characters in later stories are substituted; or (*c*) characters of earlier novels are reintroduced into later ones, of course with the traits and psychology already given them. Even with regard to later novels we cannot be sure without an examination that similar changes have not been made after the first edition, for it is notorious that Balzac was continually tinkering at his text. No view of the "rapid and formidable extension" of the system can be secured until we know with precision when the system began to be applied, and the successive steps of the application

[5] Paris, Les Presses Françaises, 1926.

[6] E. Preston, *Recherches sur la technique de Balzac*, p. 6, note 1.

not only in new books but in new editions, which no examination of the *Comédie humaine* as it stands can reveal.

Furthermore, if we succeed in dismissing the consideration of the historical aspect of the subject, we shall be singularly limited in the range of the questions that we may ask and the illumination that we may hope to get. We cannot inquire as to the possible influence of his adoption of this technique upon his manner of conceiving of his characters and stories, for which we must compare earlier stories that were fitted into the scheme by the mere change of a few names with others that were more or less completely rewritten when the technique was applied to them, and all these again with the later ones conceived when the implication of the technique had been fully sensed. In *Les Chouans*,[7] for instance, eleven of the twenty-two reappearing characters result from rechristening original actors or introducing new ones. *Gobseek*,[8] on the other hand, was entirely rewritten.

Again, it is generally supposed that the idea of reappearing characters was first applied in *Père Goriot*, in 1834. But the next four novels seem to exploit the idea much less. We must feel a degree of hesitancy in using these important works as terms of comparison.

I think it is hardly necessary to elaborate the argument further.

The problem, then, is to fix with certainty and precision the moment when the system began to be applied and to note carefully each successive application, both in new works as they appear and in old ones as new editions make changes in them possible to bring them into conformity. Here the indispensable preliminary work is a thorough examination of the earlier editions of Balzac. Not only all changes of name must be noted, all introduction of characters not mentioned in previous editions, but also all changes of text that may be connected with such changes. That work is of course impossible in this country. So far the appeal to the

[7] Helen E. Barnes, *A Study of the Variations between the Original and the Standard Editions of Balzac's "Les Chouans"* (The University of Chicago Press, 1923), pp. 41–43.

[8] Laure Surville, *op. cit.*, p. xl.

interlibrary loan system has failed to bring me any of the earlier editions of the *Scènes de la vie privée.* That work is perhaps impossible in any one place. Certainly the Bibliothèque Nationale does not possess all the various editions of Balzac. It might be possible, or more nearly so than anywhere else, in the great Lovenjoul collection at Chantilly. Almost nothing has yet been done for the history of the Balzac text, which was practically never the same in successive editions. Not until we are more fully informed about the changes that Balzac made in his text shall we be in a position to deal adequately with his use of reappearing characters.

But in the absence of the means of studying the different states of the Balzac text the reader of Balzac may still contribute to our knowledge of the history of his use of reappearing characters by an attentive study of the *Comédie humaine* in its final form. I will illustrate by two or three examples.

The accepted view, based upon the memoir of Madame Surville and passage in Félix Davin's introduction already cited, the view stated by Miss Preston and indorsed by Marcel Bouteron in the preface to Miss Preston's book, is that Balzac first applied the illuminating idea of reappearing characters in *Père Goriot,* late in 1834. I have already referred to his apparent hesitation in using the system in the novels immediately following. In *La Fille aux yeux d'or,* which came next, Miss Preston counts eight reappearing characters, but fails to note that only two whose presence in the story is noticed in the *Répertoire* of Cerfber and Christophle had previously figured in other stories, and so were reappearing characters then. In *Un Drame au bord de la mer* there were two; in *Melmoth réconcilié,* three; in *Le Contrat de mariage,* three. In 1836 a new edition of *Les Chouans* came out, but the eleven reappearing characters whose names were absent from the first edition were also absent from this.[9]

Again, Balzac did not entirely cover up his tracks when he introduced a reappearing character into an earlier novel. In *Ferragus,* 1833, he makes Jules Desmarets sell his business to the

[9] See the facsimile of a page of the 1836 editions with corrections in Miss Preston's *Recherches . . . ,* p. xii.

"brother of Martin Falleix." Certainly when he wrote that Martin Falleix was a known character in the world of the *Comédie humaine*. But he does not appear as such till 1837 when he plays a part in the *Employés*. So we have a date before which the introduction of the anonymous brother of Martin Falleix could not have taken place. It happens in this case that we also have a date after which it could hardly have taken place, for this brother gets a name and becomes Jacques Falleix in *Les Splendeurs et misères des courtisanes* in 1843.

Another example is found in *La Femme de trente ans*. This story, as it stands in the *Comèdie humaine*, is composed of six parts written at different times during the years 1830, 1831 and 1832. As written they were separate stories, each having its own title and dealing with different individuals and groups. They were first brought together under one title, which was *Même histoire* and not the present one, in the third edition of the *Scènes de la vie privée*, in 1835. In the second edition, in 1832, a note[10] had appeared, signed by the publisher, in which he informs the reader that he had asked the author to give to this group of stories the single title, *Esquisse de la vie d'une femme*, "finding in the ensemble and in the character of the five episodes (the sixth had not yet been added) which compose it a consecutive plan, an identical personage disguised under different names." The author had declined to give his consent. In the preface to the edition of 1835 Balzac explains his reasons for this refusal.[11] The character, he says, "who crosses, so to speak, the six pictures of which *Même histoire* is composed, is not a person; it is a thought. The more dissimilar costumes this thought puts on, the better it expresses the author's intentions." When Balzac wrote thus in March, 1834, had he already been illumined by the idea of the reappearing character? And when later he pressed upon this group of stories the technique of the reappearing characters, did he not essentially modify his primary intention and obscure, if not change, his original meaning?

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[10] Balzac, *Œuvres*, XXII, p. 382.
[11] *Ibid.*, XXII, p. 383.

THE INFLECTIONAL FORMS IN SPOKEN ENGLISH

ROY W. COWDEN

THE raw materials for this brief study are one thousand speech sentences taken down exactly as they were spoken. These were gathered within the twelve months ending March, 1929, by Miss Edna Montgomerie, a former student in the University of Michigan. During the summer months of 1928 Miss Montgomerie traveled in Michigan and through the east from Maryland north into the New England states, and many of the sentences were gathered at that time. Miss Montgomerie's method was the simple one of taking a position in the rear seat of an automobile, or a corner table in a restaurant, or an unobtrusive place near any group of people, and with notebook in hand making a transcript of the speech as she overheard it. She had planned her work with me and understood that she was to make an exact record. The sentences show that she has tried to do this even to the extent of attempting to catch pronunciation through spelling. One more observation should be made before I turn to the sentences. Miss Montgomerie gathered these sentences for the purpose of studying the character of amplification and modification of the simple subject-and-predicate statement in speech, and she is still at work on that problem. The present study did not occur to me as a possibility until I had seen the sentences. These sentences, then, are unusually valuable evidence because they were not gathered with the present study in mind.

My own method in examining the sentences has been to note all mistakes in English whether inflectional or not, counting the same expression more than once if it exhibited more than one kind of error. I have checked the sentences very closely, preferring for the sake of my results to call a use wrong even when it might be open to wrangle.

The sentences fall into two large groups, one of eight hundred and fifty sentences gathered through many months and in many places and the other of one hundred and fifty sentences gathered this winter on our campus, many of them here in the corridors and classrooms of Angell Hall. Among the group of eight hundred and fifty, I found only seventy-six sentences that are without spot or blemish. In the remaining seven hundred and seventy-four, nine hundred and eighty mistakes have been made, seventy-four per cent of them involving inflection and twenty-six per cent being free from the problem of inflection or involving that problem only as a secondary consideration, as in dialect uses, conjunctions and prepositions. Of the seven hundred and thirty-one misuses which touch directly upon inflection, mistakes in the verb number five hundred and fifty-eight, or seventy-six per cent.

Since the verb causes the greatest difficulty I am giving it the first consideration. Subject and verb disagree in number in one hundred and ninety-five cases, and this mistake appears to be more than twice as common as any other. One hundred and twenty-nine cases involve the interchange of the present or imperfect form and the past participle. Two of these, such as "If he'd have give up two years ago, it would have been better," use the present form for the past participle; forty-eight, such as "He had went," use the imperfect for the past participle; and seventy-nine, such as "He done it," use the past participle for the imperfect. In ninety-seven instances the wrong verb is used, but it is to be noted that in all but one of these cases only eight verbs are involved. There are fifty-five misuses of "lay" for "lie"; twenty-five, of "leave" for "let"; ten, of "set" for "sit"; and six, of "learn" for "teach." The one lone misuse deserves a full statement. It is, "Why do you be so tough?" Tense is violated in fifty-two instances, in sentences such as "Sunday I see you had company; so I didn't stop." and "These people that I give him to, they have two little boys." Eighty-two uses of "ain't," two misuses of "shall" and "will," and one intransitive verb used transitively complete the count for the verbs.

Pronouns follow verbs in the number of mistakes recorded, with one hundred and sixteen in all. There are thirty uses of the

personal pronoun for the demonstrative, invariably "them" for "those," as in "Maybe one of them bottles was for him"; twenty-eight misuses of the personal pronoun, as in "It's just them," and "Seven dollars and a half isn't bad for we women"; twenty-six uses of the nŏminative form of the third person plural for "there," as in "They's another thing I forgot to tell you";[1] nine uses of a plural demonstrative with a singular noun, as in "Those kind of books don't interest me"; two uses of the singular demonstrative with a plural noun, as in "That was my cousins from Goodrich"; seven wrong relations of pronoun and antecedent, as in "If you tell a person a fault they don't like it"; six misuses of a relative pronoun, as in "I don't know just who we'll see"; six uses of the objective form of the third person plural with "there" for the plural demonstrative, as in "I always wanted one of them there cars"; and two misuses of the interrogative pronoun, as in "Who do you want in it?" It is to be noted that seventy-three of the one hundred and sixteen misuses of the pronoun involve the use of the demonstrative.

Other errors involving inflection include forty-seven uses of adjective for adverb, as in "She demonstrated beautiful"; eight uses of the unchanged plural, always after a numeral, as in "She took five dozen ear of corn," and "each coach holds twelve passenger"; one use of the comparative degree for the superlative, as in "I am the oldest of two"; and one misuse of the correlatives, as in "Neither the peach or the cherry were any good."

Among two hundred and forty-nine mistakes constituting the twenty-four per cent that I have said do not involve inflection or involve inflection only indirectly are without doubt many that might be considered inflectional in character. One hundred and twenty-four of these errors, almost exactly half of their total number, I have included under dialect and slang. They are illustrated in the following sentences: "I had just as lief soon do it"; "Where is it at did you say?" "When those bullets struck they busted"; "Someone's been a coonin' my berries." Of the

[1] The fact that this use of "they" appears frequently in vulgar writing has forced me to believe it to be, not simply a phonetic form of "there," but a distinct use of the third person plural.

remaining one hundred and twenty-five, fifty-three illustrate the use of the double negative, as in "I was there three years and I didn't have no firin' to do"; twenty-nine, the use of the wrong preposition, as in "Put this onto Buddy"; twenty-four, the use of the wrong conjunction, as in "I don't know if she's mad or not"; seven, the use of the wrong word, as in "The amount that fought in this battle was 180,000 on each side"; seven, the wrong position of a word, as in "These people were only over since February";[2] and the others, misuse of the language by those of foreign birth, as in "When the old man is drunk he tells you everating right up in the face." This last illustration clearly mutilates the idiom in a way unknown to native speech.

Many of the dialect uses and many of the uses of conjunctions and prepositions could probably be shown to arise from inflection, and I may have made too strong a case for the number of misuses that are not inflectional in character, but even as the matter stands seventy-six per cent of the mistakes are clearly inflectional in character.

Before turning to the group of sentences gathered here on the campus, I wish to comment upon the evidence so far presented. I am aware of the danger of generalizing upon these very insufficient data, and yet I believe these sentences are fairly representative of ordinary speech. What follows can be little more than a catalogue.

The fact that there are seven hundred and seventy-one mistakes in inflection and only seven mistakes in the position of words suggests the extent to which the matter of word position is a perfectly natural thing in English in contrast to the lack of native feeling for the inflectional forms. The fifty-three cases of the double negative show how indigenous that form is, and how little the Latin training influences the unconscious uses of the language. The forty-seven uses of adjective for adverb do not after all make a very strong case for the neglect of the adverbial form. The ninety-seven cases of a wrong choice of verb do not

[2] While this position of "only," if the word were given the proper stress, might be defended in speech, I have counted it wrong here to make sure that all possible cases of wrong position have been counted.

seem an excessive number when one sees that all the mistakes with the exception of one are confined to eight verbs most of which involve a confusion of form. The fact that there are only seven other instances of selection of the wrong word seems to suggest that the sense for word meaning is very strong. Seven examples of the wrong relation of pronoun to antecedent seem surprisingly few until one remembers that in speech the antecedent is usually present in the flesh or in the mind, and that for this reason the problem of the pronominal reference falls between speeches rather than in them. Two cases of the confusion of "shall" and "will" make clear how common in speech are the contracted forms that leave this problem an open matter. The failure to decide this question in speech may have something to do with the lack of feeling for the distinction when writing is attempted. The large number of cases, one hundred and ninety-five, of disagreement of subject and verb in number, together with other mistakes in number as in the relation of demonstrative and substantive, make clear that unstudied speech feels a much greater need for the substantive-and-verb, and the demonstrative-and-substantive relation than it feels for concord in number.

Only one other problem remains to be discussed at this point, the use of "ain't." My count shows eighty-two uses of the word in these eight hundred and fifty sentences. Forty-two of these uses, slightly more than half, are substitutions, not for forms of the verb "be," but for the auxiliary "have." The distribution of the word in the various persons and numbers is presented in the following table:

Person	Number	Total	For *be*	For *have*	*H'ain't*	*'Tain't*
First	Singular	13	5	7	1	
Second	Singular or Plural	12	5	7		
Third	Singular	36	14	17	1	4
First	Plural	7	3	4		
Third	Plural	14	6	7	1	

A moment's study of this table reveals the use in the third person singular nearly four times more common, if one counts the four uses of "'Taint," than the use in the first person singular.

The other uses are evenly distributed except for the very few with the first person plural of "be" and the excessive number with the third person singular of "have." A defense of the use of "ain't" in the first person singular would seem from my evidence to lead to a leveling of the forms not only of "be" but also of "have."

Turning at last to the hundred and fifty sentences gathered here on the campus, I find the evidence telling a very different story. While only nine per cent of the eight hundred and fifty sentences were correct, seventy-six per cent of this second group are correct. Only thirty-five mistakes are to be found. Seventeen of these are inflectional in character. All the others are examples of slang, with the exception of one use of the double negative. The inflectional errors comprise four uses of the present tense for the imperfect; four cases of lack of agreement in number of subject and verb; two uses of "like" for "as" and "as if"; one use of "as" for "that"; one use of "leave" for "let"; one misuse involving voice; and one use of the imperfect for the past participle. Slight as the evidence is, it carries its burden of suggestion. There are no uses of "ain't," although a larger number of sentences might have caught this use; and the number of mistakes in inflection in proportion to the number of other mistakes and to the total number of sentences is surprisingly reduced.

It seems clear from this investigation that in common, unstudied speech the inflectional forms afford the greatest hindrance to correct expression. Almost invariably the right word is chosen, and almost invariably the right word is given its proper position, but English speech in America is frequently far from sure of the right forms. However, the evidence of the sentences collected here on the campus seems to suggest that the correct forms can be and are being learned. If the means for encouraging the right uses are as strong as they seem to be, the defense of what are looked upon as wrong uses must be based upon criterions of inherent value rather than upon the idea that they must be retained because they do exist. I wish to suggest in closing that English speech in America appears to be facing restraining influences that no living speech has ever before had to face.

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NEGLECTED ASPECTS OF THE JULES–PHENE EPISODE IN *PIPPA PASSES*

MIRIAM GABRIEL

CRITICS as yet seem insensible to the importance of the Jules-Phene episode in *Pippa Passes*. Sharp is among the critics who pass this episode without a comment. Both Mrs. Orr[1] and Fotheringham[2] dispose of it in a single paragraph, a hybrid presentation of plot summary interspersed with wisps of character analysis. Miss Mayne[3] has written the most elaborate account of the episode to date, yet despite its length her treatment also is superficial. Miss Mayne's discussion of the second episode of *Pippa Passes* is conspicuously inadequate because she neglects: to characterize Jules, to trace the influence of Phene upon Jules's spiritual growth, to interpret the intricate psychology of the hoax, and to comment upon the significance of Jules's letter to the Monsignor. It is the purpose of this paper to interpret the Jules-Phene episode, emphasizing the points slighted by Mayne.

Lutwyche, resenting the swaggering confidence of Jules, informs Bluphocks of his grievance. Bluphocks and Lutwyche plan an insidious attack which is calculated to destroy Jules's pride and philosophy. Jules's pride as well as his philosophy is rooted in an idealization of woman and a deification of mastery of technique.

Jules's confidence is derided as coxcombry by his fellow art students. Lutwyche cites detailed instances illustrative of Jules's priggish self-sufficiency, as evinced in a superior attitude toward

[1] Orr, Mrs. Sutherland, *A Handbook to the Works of Browning* (London, 1923), pp. 56–57.

[2] Fotheringham, James, *Studies in the Poetry of Robert Browning* (New York, 1888), pp. 132–133.

[3] Mayne, Ethel Colburn, *Browning's Heroines* (London, 1913), pp. 51–66.

art, women and fellowship. Obviously Jules regards the students as a group of superficial fribblers, too brutalized by their dissolute and self-indulgent ways to be capable of imaginative sensitiveness; the students in turn regard him as an insolent poseur, and his aloof indifference to their ways and whims is interpreted by them as colossal conceit.

The students believe youth is the time for a fling, folly and the flesh. Jules believes the stamina, the enthusiasm, the curiosity of youth should be dedicated to some constructive end. He intends to master the most minute aspects of modeling; all phases of the sculptor's craft fascinate him. Young as he is, he has already exhibited a cast at the academy, and has attracted the patronage of the Monsignor, a wealthy churchman. The students interpret Jules's attempts to perfect his technique by painstaking analysis of the statues of recognized masters as the disportings of a poseur. They do not understand how a sincere artist can act as if marble were more vital than man; how, in a moment of rapturous admiration, a perfect statue is more vividly alive than an imperfect companion.

When Jules hurries by a score of famous works in Canova's gallery, then stops abruptly before Psyche, greeting the statue as if it were a comrade, the students sneer; such an act indicates to them Jules's vulgar desire to center attention upon himself. Critically they watch the disportings of the poseur. After a nod of encouragement, and a few words of welcome to Psyche, Jules passes on, posting himself at length before the unfinished Pietà, where he stands for half an hour, then suddenly darts away. The students nudge each other, they have heard Jules's nonsense about the desirability of technical perfection, they exchange meaningful glances, and express an insincere hope that Jules has finally analyzed Canova's method of using the drill in the articulation of the knee joint, the sole point of the master sculptor's practice which had baffled the youth. If he has mastered that last detail, he has nothing further to learn, then farewell to poor Canova, whose gallery need no longer detain his successor, Jules, the predestined novel thinker in marble.

Jules's expressed attitude toward woman is diametrically

opposed to that of the other students. They resent his conscious purity; he, their deliberate license. He is said to have condemned their relations with women, wondering how the students should be other than the poor devils they are while they cherish such debasing habits. Jules himself would not, could not, tolerate a gross passion; he would not wallow in the mire of sensuality, he would wait and love only at the proper time.

To impress upon Jules the undesirability of being such a coxcomb, the students concoct a hoax, which Lutwyche decribes as friendly vengeance. For the development of this hoax, it is necessary to select a heroine; to invent some device which will attract Jules to the heroine; and to exploit Jules's amorous susceptibility.

The students agree that Phene, the model, is endowed by nature with graces which will stimulate the imagination of Jules. To a man ignorant of her calling, parentage and past, she will exhale romance. Fourteen-year old Phene, Greek by birth, white and quiet as an apparition. Being Greek, she brings to mind an ancient culture; being white and still, she suggests the purity and repose of marble.

Since the sculptor is unaware of the existence of Phene, Lutwyche contrives a sham letter from her which enkindles Jules's curiosity and interest. In a scented epistle from a correspondent who for a time conceals her identity, the cast of Tydeus which Jules had exhibited at the academy is praised. In due time, the mysterious correspondent mentions her distinctive personal charms — the pale cheeks, the black hair. Jules is enthralled by attention from so superb and singular a creature. In his very first reply to the sham letters, Jules proposes marrying Phene. Letters fly between sculptor and model two and even three times a day. In response to Jules's headlong proposal of marriage, he receives the answer that relations are in the way, secrecy must be observed, he must marry her on trust, and speak to her only when they are indissolubly united.

In a sceptic hardened by sensuality, such a response would arouse suspicion; but to a youth deluded by idealism, a reply at once so involved and so mystical exhaled romance. Agreeing to

wed Phene on her own terms, the quixotic sculptor adds that he has been accustomed to have Canova's women about him in stone, and the world's women beside him in the flesh, these being as much below, as those above, his soul's aspiration; but now he is to have the reality. The students gloat over the way Jules has been entrapped. Jules, the pure, the superior, the self-sufficient, head over heels in love with a model whom any man might hire by the hour. To carry the ironical jest to its cynical conclusion, Jules must be informed of the calling, parentage and past of his wife; and to make the disillusionment more bitter, the revelation must come from the lips of his bride.

Lutwyche consults Bluphocks before composing the verses to be recited by Phene. They decide that the verses which are to disclose the hoax must be slow, involved and mystical; they must hold Jules long in doubt yet take his taste and lure him on. Not until the very last line is any specific ill-wisher to be named, and in figurative language is the metaphysical doctrine of opposites to be developed.[4] Since Phene has agreed to marry Jules, and since the verses to disclose the hoax have been written and taught to Phene, the students anticipate bringing the issue to a climax.

From Phene is expected passive compliance. That Phene might attempt to express her own thoughts instead of theirs never occurs to the students. Their sole concern is to have her taught the verses, and to prepare her to meet interruptions from Jules. Although the words of the verses are little else than nonsense syllables to the model, fear of Natalia's wrath keeps her at the painful task of memorizing the meaningless rhymes. The possibility that the verses might raise questions in Jules's mind is foreseen, and Phene is advised to ignore his interruptions. Confident that they have provided against any contingency which may arise, the students feel certain that as soon as husband and wife are alone, Phene will commence reciting the verses.

From Jules, they expect inarticulate rage accompanied by physical violence. After the malice of the verses has poisoned his pride, they anticipate seeing him wracked by the conflict of

[4] Bury, John, *Browning's Philosophy* (Browning Society Papers), Vol. I, pp. 266–268.

his own emotions. Disgust with his bride and hatred of his foes will destroy his insolent pose of superiority. Knowledge of Phene's past will cheapen her in his eyes. His own marriage will appear a more degrading relationship than the students' less permanent affairs which Jules previously had regarded as beneath him.

To provide a ready enemy upon whom Jules may vent his spleen, the students agree that the name of their spokesman, Lutwyche, should appear in the last line of the verses. It is hoped that as soon as Jules hears his enemy named, he will yearn for vengeance, and that this craving for revenge will deaden all other hopes, thoughts or desires. Once emotion has dethroned reason, disdainful indifference toward his fellows will be no longer possible. The sculptor's impetuous response to love leads the students to foresee an equally imprudent response to hate.

Lutwyche, who still resents Jules's conceited independence, anticipates an insane outburst of fury from the enraged Jules, and consequently arranges that his fellows shall be present at the shattering of the sculptor's complacency. He distributes the students about a window, so that in addition to viewing Jules's discomfiture, they will be in a position to protect Phene against her disillusioned husband should he threaten her with physical injury. The group of students lie concealed near the window of Jules's house, awaiting the return of the bride and groom from church. Finally husband and wife cross the threshold; he apparently shaken by his new experience, his very hair half in storm and half in calm; she seemingly self-possessed.

As soon as Jules is sheltered by the walls of his house, he begins confiding his hopes and fears, and Phene listens in silence. His emotions vibrate between a divination of spiritual security and a premonition of an inevitable change. He regrets having changed the certitudes of the past for the forebodings of the present. Intellect and emotion are at odds, and the thoughts he expresses evince this inner conflict.

He gazes at his wife's other-worldly pallor, and implores her not to die. Assuring her of eternal fidelity, he hurls defiance at fate, and expresses a fierce longing to transcend the bonds of

flesh and merge identities. The love he feels for Phene substantiates his faith in eternal truth and goodness. Jules's new-found security is shattered by forebodings that the obligations and restrictions inherent in marriage may hamper his development as a creative artist. But upon balancing the satisfaction which in the past he experienced in expressing artistic concepts with the emotional fulfillment of the present, he concludes that love is a more vital creative force than art.

He urges his bride to speak, expecting her words to confirm his half-formulated conviction that love is the creative force of the universe. Sustained by the temporary belief that his marriage will be an ideal and permanent relationship, Jules contrasts the past emotional sterility with the present emotional fulfillment. Once, letters and hopes filled his heart; now, the woman of his choice is at his side.

Eager that his bride share even his past dreams and achievements, Jules shows Phene his treasures and tells her of his technical skill. The sham letters he draws from their hiding place in Psyche's robe; Greek books he comments on; the statues inspired by the suggestions in the sham letters he exults in. His bride ignores the treasures and gazes at him. She disregards even the casts which the sham letters have inspired. He inquires whether she thinks him fantastic, and, to prove that he is not, describes to her the thrill experienced by the artist who is master of his medium. But the attention of his bride wanders, she seems already in another world, her eyes are dilated, her pallor is increased — again he fears death beckons Phene.

What can love say or do to thwart death? Perplexity holds Jules's tongue. The silence becomes ominous, a force sensed though unseen. Finally, Phene attempts to grapple with the oppressive silence. She realizes that she must say something. The complexity of the situation she must face awes her. She has fallen deeply in love with the man she has been hired to dupe. How can she screen the man she loves from a bitter disillusionment? What can she say to explain her part in the hoax? As the moment approaches which shall decide whether Jules is hers forever or is irretrievably lost, Phene's inner conflict is manifested

outwardly by increased pallor and dilated eyes. Even while she enjoys the homage of her mate, she anticipates the revulsion of feeling Jules will experience when he learns how he has been duped. Phene suffers both for herself and for him; she may lose her lover, he may lose his illusions.

From his bride's disjointed comments, Jules learns how he has been duped, and how Phene, the innocent instrument of the students' hatred, has suffered and is suffering. Vacillating between hope and despair, she gropes for words of her own to tell Jules how he has been tricked. She decides not to repeat the students' speech which Natalia has taught her. She will say nothing that might cool her husband's ardor. Gazing at him, she muses aloud on how his voice, his eyes, have enkindled fresh hope in her. His eyes seem to burn away all memory of sin, shame and suffering. All that is unspotted in her responds to his idealistic love. Yet, even while she exults in her spiritual awakening, even while she marvels at the mystic power of his eyes, the light leaves them, they are altering — altered.

Phene's intuitions are in advance of her understanding. She feels Jules slipping away from her. She deplores her untutored mind which hinders her from understanding the meaning of what he has said. If she but understood his words, she would prevent his attitude toward her from changing. Then she wonders whether the power of the previous spell lay in the meaning of Jules's words or in the tone of his voice. As a magic formula, she repeats from Jules's previous speech a few of the words she both felt and understood, "I love you, love."

The devotion of a soiled dove does not intrigue the finical artist. As Jules starts away, Phene urges him to wait, she will do anything to please and to hold him, even repeat the speech which Bluphocks read and Natalia taught her. She will force those verses back into the center of consciousness although they have been crowded out for a time by the pleasanter fancies with which her husband filled her mind.

Superstition gains ascendancy in her naïve mind. Her husband is suffering because she did not follow directions. Natalia has warned her that unless the students' verses were spoken to

the end, harm will follow. Phene has delayed speaking the verses because she believed the evil would alight on her. Yet now not only she but Jules also seems to suffer because of her disobedience.

Thoughts of the lesson and of Natalia bring in their wake a recollection of a welter of incidents. She recalls how the students who pressed into Natalia's presence claimed to be Jules's friends. Of their friendship, Phene even then was sceptical; friends did not smile with that hateful smirk of boundless self-conceit. A thin Englishman seemed leader, he held a paper, and expounded to the students the underlying psychology of the verses which Phene was to be taught. These verses, so long delayed by spontaneous though disjointed conversation, the bride proposes to recite. But memory tricks her. The words heard but once have crowded out the couplets of hatred which have been repeated until memorized. Finally the verses are recalled, and with but one halt for explanation, she repeats them to the very last clause, "How the painter Lutwyche can hate."

At the end of the clause bearing the name Lutwyche, Jules interposes; his immediate reaction is that anticipated by Bluphocks and the students; he becomes sated with love and thirsts for revenge. He recalls that the students had shown marked enmity toward him even in Venice. If now their hatred has flamed higher, he is willng to quench it in blood. Jules's first reaction upon discovering the hoax is raging despair. The experience has seared his pride, his confidence and his conscious superiority. He faces grim realities — a sordid marriage with a miss who is no maid, and a hoax fostered by associates who are not friends.

Hatred blots out love. Jules intends to follow the students to Venice and root out all fifteen of them. Yet, at the moment of his most bitter disillusionment, his attitude toward his wife is generous. Against her, the innocent cause of his shame, he holds no malice. He attempts to keep Phene out of the rapacious clutches of Natalia. He gives his discarded bride his entire store of cash, and insists upon selling his casts, books and medals to secure additional funds. He assures her she might as well take the money, although he had saved it for two years' travel; all need or desire for study has passed now. It is as if he desires to pay for

his disillusionment materially as well as spiritually. Money he will provide for Phene, but companionship, she must seek elsewhere or learn to do without. As to meeting her again, he will not promise, but suggests they perchance might meet somewhere since the world is wide.

Just as Jules is about to forsake his wife, to go in search of his enemies, Pippa passes singing the song of Queen Kate and the page. Jules soliloquizes over the theme of Pippa's song; he interprets it, and applies the interpretation to his own relationship with Phene. He endeavors to rationalize himself into a state of mind where to cleave to his wife seems for their mutual good. Did not Pippa sing that it is a bitter thing to see the woman we love so secure that she has no need of us? They are Philistines who will not love unless the lady be above need. If in love one must be either queen or page, is it not ignoble deliberately to choose the page's part? Phene has an utter need of him. Upon Jules dawns the realization that mankind cannot be ignored. If one be too strong to require the aid of his fellows, by the same token, he is strong enough to succor the weak among his fellows.

Again he looks fixedly at his bride, now not with loathing but with insight. He is thrilled by the knowledge that the creative urge may express itself in substances more vital than marble. In the eager trembling of his wife's lips, he senses the breathlessness following a struggle. He sees Phene's soul new-born, he sees it alight on her lips like that of his own statue, Psyche. Before her spiritual awakening, Phene was neither good nor evil, she took color from the beauty or ugliness of her environment. Jules's love has created Phene's soul; his loathing can destroy it; his regard, preserve it.

His pride in having created Phene's soul is short-lived. The raucous laughter of the students shakes his new-found security. Jules tries to purge his memory of the hoax. He pits his reason against his emotion. He asks himself the questions: "Who is this Lutwyche? What is his future?" The answer is, "A wretched dauber whom men will inevitably hoot to death." But emotion conquers reason; Jules for a moment cannot force out the memory of the hoax, the hooting of his enemies, the besmirching of his ideals.

Dissatisfaction with the present leads Jules to recall the life he led before his marriage. Then, his greatest joy was work, and to work all he needed was silence. By deliberate effort of will, Jules swerves from the past to the present. Self-commiseration will accomplish nothing. Sensing the innate spirituality of his wife, he seeks her aid, and upon him, the creator of her soul, Phene exercises a mystical regenerative power. For ambition, she substitutes aspiration; for hate, love. Desire of fame and lust for revenge wither in the light of revived love. Jules determines to cleave to his wife, and ere night to start for her homeland. "Go together — ever together — to some isle with the sea's silence on it."

The students miscalculated Jules's reaction to the hoax because they regarded him as an egocentric poseur, when in reality Jules is an idealistic artist. That Jules is essentially humane is shown in his willingness to sacrifice his own future to serve a woman with utter need of him. The artist in Jules compares Phene after her spiritual awakening with his own statue of Psyche. It is his artistic perceptions which strengthen Jules's innate humanism; and, in turn, his humanism deepens and renews his artistic perceptions. In awakening Phene's dormant soul, Jules experiences a vitalizing creative fervor. To touch a soul into life is a greater achievement than to strike a glow in marble.

The initial disillusionment upon discovering his wife to be a model of unschooled mind and questionable virtue has not broken Jules's spirit nor crushed his ambition. Bluphocks and Lutwyche have underestimated the resiliency at the core of Jules's nature. Unwittingly, the students level a criticism against Jules's limitations which he is virile enough to face and profit by. The shock leads the artist to scrutinize his past standards and reëvaluate them. Out of this forced examination eventually springs a less priggish attitude toward life and a more daring one toward art.

The emotional upheaval precipitated by the students' verses quickens Jules's insight. He realizes the futility of embodying an idea in a permanent medium when the idea itself is trite. To him comes the revelation that perfect form in art is not enough. With clarified vision, he examines the casts inspired by the sham

letters, decides to break up those paltry models and begin art afresh. In a letter written to his patron, the Monsignor, Jules formulates what he considers his past limitations and his future aspirations. He admits that in the past he had lacked a clearly conceived ideal of his own, he had reproduced the concepts of other minds. His readiness to accept ideas from without instead of seeking his inspiration from within explains why a number of his casts were modeled after suggestions made in the sham letters by his detractors.

He shall never fall into such a trap again. Now, because he distrusts his fatal facility, because he fears the technical control which he so painstakingly acquired, Jules determines to turn painter instead of sculptor. He concludes that by working in a medium new to him, he will escape conventional roads through sheer ignorance of them.[5]

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[5] The Jules-Phene episode is one of Browning's earliest studies in the psychology of the creative artist. In a future article, the author will show that a number of theories, points of view and metaphysical concepts which appear in this episode have been repeated from *Paracelsus* and reappear in the art poems in *Men and Women*.

NOTES ON A PROPOSED EDITION OF THE CORRESPONDENCE OF SAMUEL TAYLOR COLERIDGE

EARL LESLIE GRIGGS

IN ORDER to make clear the general outline of my proposed edition of Samuel Taylor Coleridge's unpublished correspondence, it will perhaps be well briefly to survey what has already been done and to list the more important publications in existence. During his lifetime Coleridge published some of his letters,[1] and he mentioned more than once the publication of his correspondence by Poole and Wordsworth. Writing to Poole on May 20, 1803, he says:

> I will send you instructions with respect to my letters etc. — which should be collected — & I shall leave it entirely to you & Wordsworth to choose out of them such as with necessary omissions, & little corrections of grammatical inaccuracies may be published.[2]

Nor has there been any dearth of interest in his letters since his death in 1834.

Allsop in 1836 brought out the *Letters, Conversations and and Recollections of S. T. Coleridge,*[3] a mine of information of the poet's later life and thought. Cottle, who befriended the poverty-stricken Pantisocratists in Bristol, dealt somewhat harshly with Coleridge in his *Early Recollections Chiefly Relating to the Late Samuel Taylor Coleridge*[4] in 1837, and again in 1847 in his *Remi-*

[1] See Wise, T. J., *A Bibliography of the Writings in Prose and Verse of Samuel Taylor Coleridge* (R. Clay & Sons, London, 1913), pp. 257, 267, 275–277.

[2] From an unpublished letter in the British Museum.

[3] First edition unsigned, 2 vols. (Edward Moxon, London, 1836).

[4] *Early Recollections, Chiefly Relating to the Late Samuel Taylor Coleridge,* by Joseph Cottle, 2 vols., 1837.

niscences of Samuel Taylor Coleridge and Robert Southey,[5] a book containing many of Coleridge's letters to the Wedgwoods. These two books, though full of seemingly deliberate misrepresentations, contain much valuable information about Coleridge's early life. In 1884, under the auspices of the Philobiblion Society, H. A. Bright edited Coleridge's correspondence with the Reverend Prior Estlin,[6] a book of interest to students of philosophy and theology. In 1888, Mrs. Maria Sandford, née Poole, brought out her *Thomas Poole and His Friends,*[7] a book dealing chiefly with Coleridge. In 1889, Miss Stuart, with the assistance of E. H. Coleridge, the poet's grandson, published privately *Letters from the Lake Poets,*[8] a volume containing seventy-five letters from Coleridge, almost his entire correspondence with Daniel Stuart, editor of the *Morning Post.* In 1895, there appeared, under the editorship of E. H. Coleridge, the only general edition of Coleridge's letters.[9] In 1903, Litchfield in *Tom Wedgwood, the First Photographer,*[10] included a considerable number of letters between Coleridge and the Wedgwood brothers, his benefactors. A number of letters evidently remain unpublished, for Mr. Frank H. Wedgwood, the present head of the Wedgwood family, recently wrote to me as follows:

> We have, as you know, certain letters which we should like to go through with you bearing on S. T. Coleridge's relations with the second Josiah and his brother Tom. As you know, the second Josiah has been taken to task somewhat severely on the score of his cancelling his annuity to Mr. Coleridge, but the papers we can show you go far to remove any charge of hard-heartedness on his part, and it is this particular fact which we would wish, if possible, to have brought out.

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[5] *Reminiscences of Samuel Taylor Coleridge and Robert Southey,* by Joseph Cottle, 1847.

[6] *Unpublished Letters from Samuel Taylor Coleridge to the Rev. John Prior Estlin,* Communicated by H. A. Bright, privately printed, 1884.

[7] *Thomas Poole and His Friends,* by Mrs. Maria Henry Sandford, 2 vols., 1888.

[8] *Letters from the Lake Poets, Samuel Taylor Coleridge, William Wordsworth, Robert Southey, to Daniel Stuart, Editor of The Morning Post and The Courier, 1800–1838,* Printed for Private Circulation, London, 1889.

[9] *Letters of Samuel Taylor Coleridge,* edited by Ernest Hartley Coleridge, 2 vols. (Heinemann, London, 1895).

[10] *Tom Wedgwood, the First Photographer,* by R. B. Litchfield, 1903.

In 1911, Turnbull reëdited the *Biographical Supplement to the Biographia Literaria*,[11] and added a few new letters. The following year Orlo Williams in his *Life of John Rickman*[12] included a number of Coleridge's letters to Rickman.

Nor is this all. A considerable number of memoirs and biographies, as well as periodicals, contain letters; but I relegate them to a footnote.[13]

This imposing survey may suggest that most of Coleridge's letters have been published. Such is not the case. When E. H. Coleridge edited his two-volume edition of his grandfather's correspondence, he made transcripts of about a thousand letters though he used only two hundred and sixty of them. It was his intention to write an authentic biography of his grandfather, but he died without accomplishing his project. There are in the possession of the Reverend G. H. B. Coleridge originals and transcripts of about seven hundred unpublished letters. E. H. Coleridge omitted letters from his volume because he found them not intrinsically interesting, or of too personal a nature, but as his selection does not pretend to be complete, there remain many unpublished letters of interest, either for their biographical facts or for information about Coleridge's personality. I feel that several hundred of these letters are well worth publication.

There are, besides the letters in E. H. Coleridge's collection, a considerable number in various other places; the British Museum, for instance, possesses the series to Poole, the series to Stuart, and others. Many of these letters are valuable.

[11] *Biographia Epistolaris, being the Biographical Supplement of Coleridge's Biographia Literaria.* With additional letters, etc., edited by A. Turnbull, 2 vols. (G. Bell & Sons, London, 1911).

[12] *Life and Letters of John Rickman*, by Orlo Williams, 1912.

[13] *The Life of the Rev. Joseph Blanco White*, Written by Himself, 1845; *Life and Correspondence of Robert Southey*, 1849–50; *Memoir of the Rev. Henry Francis Cary*, 1847; *Memoirs of William Wordsworth*, 1851; *Fragmentary Remains of Sir Humphry Davy, Bart.*, 1858; *Diary, Reminiscences, and Correspondence of Henry Crabb Robinson*, 1869; *William Godwin: His Friends and Contemporaries*, C. Kegan Paul, 1876; *Alaric Watts. A Narrative of his Life*, 1884; *Memorials of Coleorton*, W. Knight, 1887; *Life and Letters of Washington Allston*, J. B. Flagg, 1893. This list is but suggestive of the number of sources for Coleridge's published letters. For further bibliography, see Wise's bibliography of Coleridge, as cited in note 1.

My plan is briefly as follows. Since the Reverend G. H. B. Coleridge, great-grandson of the poet, with whose kind permission I am editing these letters, is absolutely opposed to the publication of Coleridge's correspondence *in extenso*, and since many of the letters are worthless from every point of view, I shall endeavor to edit only part of his unpublished letters. In the first place, I shall choose those letters which seem to me to be of genuine literary interest, either in their expression of general ideas, or in their superb lyrical splendor. As examples, two letters will serve. In 1821, Coleridge, heartbroken over the failure of his elder son, Hartley, to make anything of life, wrote to the Reverend Mr. Dawes, to whom he had intrusted the early education of his sons, asking that Hartley be given an opportunity to regain his lost self-respect by teaching school at Ambleside under the kindly supervision of his old master:

> At the ordinary time my Boys were sent to school, and found a Father under the name of a Master in you. You, dear Sir! can best say, whether they were backward for their age, or gave proofs of having been neglected either in moral principles or in good dispositions — whether they were beyond boys in general undisciplined and disobedient. As soon as I was informed of Hartley's passionateness and misconduct towards his Brother, you will do me the justice to answer for me, whether I was not even more agitated and interested than in your opinion the case warranted — and whether I left any means untried to bring Hartley to a sense of his error * * * * Since the time of Hartley's first arrival at Calne, to the present day I am not conscious of having failed in any point of duty, of admonition, persuasion, entreaty, warning, or even (tho' ever reluctantly, I grant) of — parental injunction — and of repeating the same whenever it could be done without the almost certain consequence of baffling the end in view. I noticed, and with concern, in Hartley and afterwards in Derwent a pugnacity in self-opinion, which ever had been alien from my own character, . . . a readiness to believe others my superiors and surrender my own judgement to others, but in part, this appeared to me the fault of their ages, and in part of impressions made in their minds with regard to myself, not more unjust in themselves than unfortunate for them — As far as the *opinions* & suppositions went, they indeed speedily underwent a revolution, soon after they had been with me & had compared them with those of the respectable Persons, who had known me day & night uninterruptedly year after year — and in Hartley at least, the revolution was compleat. But the habit of feeling remained. I appeal to God and to their own consciences and to all good men who have observed my conduct towards them whether I have aught to condemn myself for, except perhaps a too delicate manner of applying their affections and understandings and moral senses, and by which, it is to be feared, I have in Hartley's case unwittingly fostered that cowardice as to

mental pain which forms the one of the two calamitous defects in his disposition — For to whatever extent . . . [this] . . . betrayed itself during his sojourn at Calne, and afterwards on his first arrival at Highgate, I have the testimony of our sensible and exemplary Minister, the Revd. S. Mence, formerly Tutor at Exeter College, and who took a lively interest in both my sons, that it was less and less apparent at each successive visit, and but a few months before his unhappy fall-out at Oriel he had, in common with my excellent Friends, Mr. and Mrs. Gillman — warmly congratulated me on the striking improvement in Hartley's manners, above all in the points of Docility and Self-Control. But let it be, that I am rightly reproached for my negligence in withstanding and taming his Self-will — yet is this the main Root of the Evil? I could almost say — would to God, it were! for then I should have more Hope. But alas! it is the absence of a Self, it is the want or Torpor of Will, that is the mortal sickness of Hartley's Being, and has been, for good & for evil, his character — his moral *Idiocy* — from his earliest Childhood — Yea and hard it is for me to determine which is the worse, — *morally* considered, I mean; the selfishness from the want or defect of a manly Self-love, or the Selfishness that springs out of the excess of a worldly, Self-interest.[14]

Again, recently discharged from the Army, and full of Christian humility, Coleridge was led to unburden his heart to his brother George:

My brother would have heard from me long ere this had I not been unwell, — unwell indeed — I verily thought, that I was hastening to that quiet bourne, where grief is hush'd; and when my recovered strength would have enabled me to have written to you, so utterly dejected were my spirits, that my letter would have displayed such a hopelessness of all future comfort, as would have approached to ingratitude —

Pardon me, my more than brother! if it be the sickly jealousy of a mind sore in the 'self-contracted miseries,' but was your last letter written in the same tone of tenderness with your former? Ah me! what awaits me from within and without, after the first tumult of pity shall have subsided — Well were it, if the consciousness of having merited it, could arm my heart for the patient endurance of it —

Sweet in the sight of God and celestial Spirits are the tears of penitance — the pearls of heaven — the wine of Angels! Such has been the language of divines, but divines have exaggerated. Repentance may bestow that tranquillity, which will enable man to pursue a course of undeviating harmlessness, but it cannot restore to the mind that inward sense of dignity, which is the parent of every kindling energy! I am not what I was: — *Disgust* — I *feel*, as if it had jaundiced all my faculties.

I laugh almost like an insane person when I cast my eye backward on the prospect of my past two years — What a gloomy *huddle* of eccentric actions, and dim-discovered motives! To real happiness I bade adieu from the mo-

[14] Since this article was written my volume on *Hartley Coleridge: His Life and Work* (University of London Press, London, 1929) has appeared. For this quotation see pp. 107–110.

ment, I received my first 'Tutor's Bill,' since that time, since that period my mind has been irradiated by bursts only of sunshine, at all other times gloomy with clouds, or turbulent with tempests — Instead of manfully disclosing the disease, I concealed it with a shameful cowardice of sensibility, till it cankered my very heart.

I became a proverb to the University for idleness — The time, which I should have bestowed on the academic studies, I employed in dreaming out wild schemes of impossible extrication. It had been better for me, if my imagination had been less vivid. I could not with such facility have shoved aside reflection! How many and how many hours have I stolen from the bitterness of truth in these soul-enervating reveries — in building magnificent edifices of happiness on some fleeting shadow of reality! My affairs became more and more involved. I fled to debauchery; fled pure silent and solitary anguish to all the uproar of senseless mirth — Having, or imagining that I had, no *stock* of happiness to which I could look forward, I seized the empty gratifications of the moment, and snatched at the foam, as the wave passed by me. I feel a painful blush on my cheek, while I write it, but even for the Un. Scholarship, for which I affected to have read so severely, I did not read three days uninterruptedly — for the whole six weeks, that preceded the examination, I was almost constantly intoxicated! My Brother! you shudder as you read.

When the state of my affairs became known to you and by your exertions and my brothers' generous confidence a fair road seemed open to extrication, Almighty God! what a sequel! I loitered away more money on the road, and in town than it was possible for me to justify to my conscience; and when I returned to Cambridge a multitude of petty embarrassments buzzed round me, like a nest of hornets, embarrassments, which in my wild carelessness I had forgotten, and many of which I had contracted almost without knowing it. So small a sum remained, that I could not mock my tutor with it — My agitations were delirium — I formed a party, dashed to London at eleven o'clock at night, and for three days lived in all the tempest of pleasure — resolved on my return — but I will not shock your religious feelings — I again returned to Cambridge — staid a *week* — such a week! Where vice has not annihilated sensibility, there is little need of a Hell! On Sunday night I packed up a few things, went off in the mail, staid about a week in a strange way, still looking forward with a kind of recklessness to the *dernier* resort of misery. An accident of a very singular kind prevented me, and led me to adopt my present situation — where what I have suffered! — but enough, may he, who in mercy dispenseth anguish be gracious to me.[15]

In the second place I shall choose any letters that seem to contain new biographical facts about Coleridge. Coleridge's life has been written many times, but J. Dykes Campbell is the only biographer who has had access to any considerable number of unpublished letters, and his work does not attempt to be thorough. Any unpublished letters, therefore, which give ad-

[15] February 23, 1794.

ditional facts about Coleridge's life should be included. As examples of the new information in these letters, I cite the following items.

There have been conflicting explanations of Coleridge's reasons for leaving Cambridge in 1794; these letters show at least that a bill of £132–6–4½ stood against Coleridge when he absconded. Moreover, they give in detail his experiences as a dragoon and enable us to draw a fuller picture.

Though it is known that Coleridge served first as a private secretary to Sir Alexander Ball, civil governor at Malta, and then in an official capacity, I have several letters showing that he was sent on a diplomatic mission. Writing to his wife on December 12, 1804, from Malta, Coleridge speaks of his official activities at Syracuse and says that the confidence placed in him by Sir A. Ball is "unlimited." Coleridge goes on to speak of a proposed trip to Greece and the Lower Balkans.

A note in E. H. Coleridge's edition of his grandfather's letters shows that Coleridge first took opium at Christ's Hospital, and every biographer has had something to say of his slavery to opium. The unpublished letters present very clearly Coleridge's agony of conscience and prove that his struggle against the indulgence was lifelong, and occasionally quite successful.

Coleridge's relations with Lord Byron were never very extensive; but I have five letters to Byron which have never been published in full. These letters show Coleridge at his best, and serve as an interesting comment on the relationship of two men of opposite temperament.[15]

Finally, to make my edition as useful as possible, I shall include those published letters which are not accessible to the average library, letters taken from books or periodicals long out of print, and practically unprocurable today. For instance, the letters to Daniel Stuart, editor of the *Morning Post*, are for the most part to be found only in the *Letters from the Lake Poets*, a volume privately printed and circulated, and not obtainable.

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[15] These letters are included in an article, "Coleridge and Byron," to appear at an early date in the *Publications of the Modern Language Association*.

GERHART HAUPTMANN, THE GERMAN EMPIRE AND THE REPUBLIC

WALTER A. REICHART

DURING the reign of William II, Hauptmann's position was a difficult one because he was *persona non grata* at court. Though he was well known, respected in literary circles, and surrounded by intimate friends and ardent admirers, the refusal of the emperor to bestow an official decoration was enough to rob the poet of his proper recognition and influence at home. The discord between poet and kaiser was one of long standing. As early as 1887, when Hauptmann was barely twenty-five, he came in contact with Prussian autocracy. It was during the famous or rather infamous Socialist persecution that Hauptmann was called into court as witness at Breslau, saw some of his school friends sentenced to hard labor, and barely escaped himself. What had the offense been? A group of students had formed a club in which they talked of a new Utopia to be located on the plains of far-off Iowa and now they were tried as a secret organization established in violation of the anti-Socialist laws.

A few years later, the performance of *Die Weber* was forbidden by the police in Berlin on the pretext that the drama presents "state and church and social order as unworthy of existing and pictures rebellion as the duty of an honest man."[1] Hauptmann and his friends took the matter into court and after the usual legal delay the unexpected happened; the judge decreed that the play could not be suppressed. The joy of Hauptmann was equaled only by the anger of officialdom. The emperor forced the resignation of the judge, gave up the royal loge at the theater, and awaited further opportunities to humble the poet. And so he refused his consent to the award of the Schiller prize, the greatest literary honor in Germany, though Hauptmann was frequently

[1] Hülsen, Hans von, *Gerhart Hauptmann* (Leipzig, 1927), p. 76.

mentioned for it. Nor was the emperor unaware of his personal animus and is quoted as saying privately: "I know of course that Gerhart Hauptmann is the most significant German poet of our times, but I just can't forgive him for his *Weavers*."[2]

So Hauptmann's honors came from foreign quarters. Bernard Shaw cleverly explained this paradox when Hauptmann appeared at Oxford in 1905, and was made an honorary doctor. "I admire Germany very much," he said. "Like all great countries she is modest and gladly leaves the celebration of her greatest men to foreign countries."[3] When the time of the poet's fiftieth birthday drew near, Sweden awarded him the Nobel Prize for Literature "principally for his rich, versatile and prominent activity in the realm of the drama."

At the banquet in Stockholm, Hauptmann expressed his deepest conviction in a plea for world peace. He felt the tension that had made Europe speed up its competitive armament instead of making an international rapprochement, and in accepting the award took this opportunity to emphasize the real meaning of the prize, the strengthening of the bonds of friendship among nations and closer coöperation for the benefit not of one country but for the welfare of mankind. And so his toast was: "I drink to the realization of the underlying ideal of this endowment. I mean the ideal of world peace which includes of course the final ideals of science and art. Art and science which serve for war are not final and genuine. The final and genuine art and science are those which peace is bearing and which are bearing peace. And I drink to the great final, purely ideal Nobel Prize which mankind will then award itself, when brute force among nations will have become outlawed as brute force has already become outlawed among individuals of civilized society."[4]

These words were not taken seriously enough; everyone felt that such sentiments were appropriate for the occasion, but were no more significant than most platitudes about coöperation, friendship or good-will among nations, uttered in a bibulous banquet mood. Hauptmann, however, was not fulfilling empty form or

[2] *Gerhart Hauptmann* (Leipzig, 1927), p. 139. [3] *Ibid.*, p. 118.

[4] *Neue Freie Presse*, Berlin, Dec. 12, 1912.

tradition; he spoke from his heart as he did the following year when Breslau, the capital of his native province, approached the poet with the request for a play to commemorate the wars of liberation. Hauptmann hesitated and refused, but was urged to accept against his better judgment. Then he proceeded to write the *Festspiel*, a puppet play in which he presents in quick succession the events of the French Revolution and the subsequent liberation of Germany. He pictures the mothers who gave their sons and the soldiers who freed their country by their sacrifices, but the princes and kings were strangely absent. A glorious parade ends the play, yet in this festival procession there are no soldiers, but only peasants and working men, poets and philosophers. Hauptmann had ignored the glory and the splendor of war, but had flayed its murder and destruction. His sharp satire of the superpatriots and his contemptuous toleration of the mere soldier aroused violent hatred of the poet. At the end of the pageant, Athena Germania pronounces this eloquent plea for peace:

> And penetrating world and all and me at once,
> I see the meaning of my life and shining arms:
> They are for deeds of peace, and not for deeds of war.
> They are for benefits, and never for misdeeds!
> But warfare's naked murder, say, what else is that?
> So then I call on ye, that in another war
> Have warred! That brought not death, but have created life!
> I give to you the golden weapon, sacred tool,
> To dig the ripened fruit from stony soil. I made
> You wrestlers with delusion. Of unseeing hate
> I tore the bandage from your eyes; and made you love.
> I showed you how to tread your paths with feet of peace
> Enwreathed and fair. I taught you how to lay broad ways
> For love's fraternal tread. The unforgiving gulf
> I bade be still, and alienating things be fused
> Into the bridge's arch. Now man with man unites
> Across the gulfs, as folk with folk. And caravans
> Bear precious loads, but do not feel dissension's weight.[5]

Germany was deeply stirred, not on account of the eloquent plea for peace, but on account of the unqualified condemnation of war. The military order protested violently against this unpatriotic work and did not rest until the emperor demanded the

[5] *The Dramatic Works of Gerhart Hauptmann*, ed. L. Lewisohn (New York, 1917), 7 : 94.

play to be taken off the boards. This, however, did not quiet matters; whereas previously only the veterans and military leaders had been aroused, now all liberal thinkers, socialists and pacifists resented such high-handed censorship. While the play received little attention at its opening, it was now the subject of violent party disputes. Throughout Germany discussions raged that reached even the floor of the Reichstag where Hauptmann was violently denounced. In 1920 Republican Germany celebrated the first anniversary of Constitution Day with a performance of this same *Festspiel* in the presence of President Ebert in the former Royal Theater.

As the summer of 1914 approached there came with it the realization that Hauptmann's warning had been justified. War was engulfing Europe. The poet's position was clear to him. His duty was to his country and he turned from his dramatic work to devote his energy to its immediate welfare. His sons went to war and he defended Germany against foreign accusations. There was, however, (and that is noteworthy) no hatred in his heart, no desire for annexations, but only sorrow and the wish for speedy peace. He recognized that in spite of war lords and military propaganda, the great mass of people loved peace and had no ambitions for expansion. To present the German viewpoint to the neutral countries Hauptmann wrote in Björnson's *Nordische Correspondenz:*

> The idea of Weltbürgertum has nowhere taken root so deeply as with us. Let one look at our literature of translation and then name a people who has tried as we have to appreciate the mind and the individuality of other nations, to understand their souls. . . . I speak frankly; we have and had no hatred for France; we have worshipped the paintings of this country. The appreciation of Rodin was introduced by Germany; we honor Anatole France. Maupassant, Flaubert, Balzac are the same as German writers to us. We have a deep affection for the people of southern France. One finds passionate admirers of Mistral in small German towns, in narrow streets, and garrets. It was to be sadly deplored that Germany and France could not be friends politically. They should have been because they are two completely civilized European pivotal powers. Fate decided otherwise.[6]

Hauptmann saw that it was too late to look back; the die was cast. The only hope was in the future and with that in mind

[6] "Gegen Unwahrheit," reprinted in *Berliner Tageblatt*, Aug. 26, 1914.

he looked hopefully to the day when nations should see the futility and the destructiveness of war. In closing his article he envisaged those conditions:

> It would depend upon making peace among the nations of the continent intelligible, so that this world war would be the last one among them. They must finally acknowledge that their bloody duels bring ignominious profit only to him who causes them without taking part. Then they must pursue a common civilized work of peace which makes misunderstandings impossible.

Throughout the war his writings sounded this keynote: War is bestial, war is wrong because it destroys human life. The political significance meant less to Hauptmann, he saw only suffering humanity. It was in this vein that he answered Romain Rolland's public accusation of barbarism: "Certainly it is serious if in the turmoil of battle an original Rubens is destroyed — all honor to Rubens! —, but I belong to those who feel greater sorrow over the bullet-riddled body of a man."[7]

During the years of the war Hauptmann wrote very little and published less. His creative talent was hampered by his surroundings; he needed the warmth of the south and the beauty of the seashore, but found Italy closed to him and Hiddensee covered with coast defense. He was unable to feel any deep enthusiasm for the war and yet he could not shut his eyes to the conflict as Goethe had done a hundred years before. He was continually requested for contributions to war publications, charity volumes and newspapers, but with the possible exception of *O Mein Vaterland* and *Reiterlied*, they were ephemeral, patriotic utterances that have long since been forgotten.

Not until 1917 did there appear a new drama from his pen, *Winterballade*, a dramatic adaptation of Selma Lagerlöf's story, *Herrn Arnes Schatz*. It reflected the war horrors and bloodshed, but it had neither the appeal nor the strength of Hauptmann's more personal dramas. Late that year, however, when the war was nearing its end, he gave to his people a beautiful *Novelle*, *Der Ketzer von Soana*, that transports the reader to the beautiful landscape of southern Switzerland where Hauptmann's spirit sought refuge. This glorification of the creative life-principle,

[7] *Vossische Zeitung*, Sept. 10, 1914.

written in a period of bloodshed and spiritual sterility, gave new strength and hope to Germany in the face of starvation and defeat. Hauptmann fled from the chaos of western civilization to the orderly simplicity of Hellenism where he found peace in the contemplation of mystical sensuousness. In the warm purity of nature, undefiled by human institutions, he felt primitive vitality and was able to greet life anew. The *Ketzer* is really for Hauptmann an escape by which he saved himself and many of his countrymen from death and despair.

Though Hauptmann wrote of the triumph of life in the *Ketzer*, it was only a temporary relief from the stagnation and the disaster that the World War had brought. All the despair of the poet found its outlet in two dramas, *Der Weisse Heiland* and *Indipohdi*, and an epic, *Till Eulenspiegel*, written during and after the war. He interpreted the grim tragedy of the world and presented a parallel in the conquest of Mexico. Montezuma, the visionary who has extolled peace and is awaiting the white redeemer, is destroyed by his dream. His wisdom and kindness that have made him a great ruler are powerless against the cunning of the invaders. Montezuma is a second Quint, another fool in Christ who is a victim of Christianity. The true disciple is vanquished by those who come to proclaim the gospel of Jesus with fire and sword. The historical events are blurred perhaps, but Hauptmann saw only bleeding Europe as he wrote and he stressed suffering humanity. He is once more the poet of sympathy who takes up the cause of the weaker struggling silently against overwhelming odds.

The second drama again presents conflict and war, but it ends more calmly. Like Shakespeare, Hauptmann creates a magic island in the far west ruled by the wise Prospero. Like Shakespeare, he sends a final message of peace, but there is in this play none of the happy, care-free gaiety of Shakespeare. Prospero is tired of life, weary of magic, and longs for one thing only — rest. Philosophical pessimism oppresses him. As he goes to death, he does not wish for immortality according to Christian doctrines; he prays for personal dissolution and a return to the life-principle. Prospero gives up his crown and his magic wand and ascends the mountain with a beggar's cup in hand, never to return.

Though not published until 1927, *Till Eulenspiegel* is another terrible accusation. This monumental epic of 8000 hexameters contains all Hauptmann's reactions to the World War. It is the cry of a wounded soul, the despair of one who has seen his hopes and his aspirations crumble. The faith in his cause is gone, evil has triumphed again over good, and the world is reduced to chaos. Till is no longer the care-free fool of the legends who roamed the countryside playing his pranks upon the populace and amusing them with his antics. Till has become an aviator, a war ace, who has tied the fool's bells to his leather cap and journeys through the land, a prophet and a sage. If he be a fool, he is one of Shakespeare's fools, full of bitter melancholy. He sees the havoc and the destruction around him, but tries to deaden his senses with jests in order to be able to live on. Till endures as soldier and German the political tragedy of the age; he lives through collapse and reconstruction and dies voluntarily, like Prospero, in order to find peace in dissolution.

Thus Hauptmann freed himself of the burden of the war. Now he was at liberty to work again. With the outbreak of the Revolution, he saw new tasks before him. Always deeply in sympathy with his people, he did not hesitate to turn from his dramatic work in order to devote his energies to reconstruction. He was not surprised by the Revolution. He had studied the political complexion of his country for years and saw the approaching doom of the empire. Nor could he be expected to feel deep emotions at the hurried departure of the Hohenzollerns. His patriotism, though questioned by the kaiser, had always sought to stimulate and further the welfare of mankind. He saw the danger too of becoming involved in the factional strife of politics and also its effect upon its literary work. Even before the war, when he was studying the social and political problems, he said that only by sheer force did he stifle his political leanings in order not to jeopardize his literary activities. "Who has something to say in his own way must learn to be silent in every other way." And it is well that Hauptmann has kept aloof in spite of the effort to draft him as candidate for the presidency of the republic. He was ready, however, to give aid and council freely, to appear on the stump if

necessary, to keep Germany united. To serve one's country is to serve one's people and to serve the people is to serve humanity. The classical ideal of *Humanität* belongs to Hauptmann as much as to Goethe. While contemplating the Hellenic culture on his journey through Greece in 1907, Hauptmann speculated upon the intimate relation between poet and state. He knew that literature for the Greeks was not an artificial creation; it was the spontaneous expression of the highest ideals of Greek life. In his diary he jotted down the words: "What would a poet be whose being is not the heightened expression of the common soul?"[8] Or perhaps, as he was occupied with the problems of reconstruction, he thought back to the nineties when his most pretentious drama failed. The critics then said that he lacked the true patriotic understanding necessary for historical drama. Yet he had had a very noble conception of nationalism. In referring to the just cause of the peasants that he had defended, Florian Geyer spoke boldly: "Now I have served a divine cause — now I'll never serve a king again!" Hauptmann, too, had served this divine cause for many years unrecognized and was now more than ever ready to champion democratic principles.

Hauptmann was always an admirer of constitutional government. For years he was suspicious of the glamour and tinsel that hid the dangers of Wilhelm's policies and interested himself in the democratic form of government. He kept aloof from political parties in order to maintain his independence, though he felt sharp antipathies to the *Gewaltpolitik* that threatened the peace of Europe and resulted in serious international crises. During the war period, when silence was the only patriotic solution, Hauptmann's bitter reflections found expression only in his diary and there we read:

> I can't get over the fact that war substitutes for the fifth commandment: 'Thou shalt not kill' another: 'Kill as many of your fellowmen as you can.'
>
> The presupposition of civilization is that the greatest importance is attached to human life. As war does not value human life, it renounces, even betrays civilization.

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[8] *Griechischer Frühling*, 1908.

Every stroke of the sword dishonors and wounds mankind in some way. Every thrust of the spade enriches mankind.

Only the idea of peace, not of war, can be raised to the *n*th power.[9]

In each of these statements human life and humanity are paramount. Their recognition and their protection are signs of civilization that should be beyond the influence of political events. Hauptmann had faith in the continued existence and welfare of Germany. He looked forward to the ultimate order to be established from chaos and expected much from the republic. "We are innocent of democratic practices. That is why we do not know how productive we should be in democratic government."[10]

Hauptmann saw clearly that the period of reconstruction which must follow every war might prove very dangerous for Germany. The Russian Revolution had completely overthrown all government and the Bolshevist leaders were eager to spread their doctrines in Germany. The November Revolution, though it was for the most part bloodless and orderly, typically German in its calm routine, showed nevertheless that a lack of leadership would leave the country at the mercy of factional strife. Once the ingrained respect for law and order was lost, nothing could save Germany from anarchy and internal war. Now more than ever did she need the undivided support of her citizens. At the request of his fellow-artists Hauptmann prepared an appeal and became their spokesman. Four days after the signing of the Armistice and on his own birthday, he sent out the following proclamation signed by the leading poets and artists of Germany:

Mankind has been sinned against enormously. The civilized world became a military camp and a battle-field. Millions of the best sons of all nations rest in their graves. The dead, fraternally united, are at peace. For us, too, the armed battle has stopped; not, however, the battle for the existence of our nation, this nation which to a just future generation will appear in a halo. We creators with chisel, palette, and pen, we builders and musicians, men and women who, above all, are human beings, and Germans with all our hearts, do not doubt that our people, our land will endure and will not perish. But we see people and country put to a hard test just now. Everything depends upon passing it. We have lived to see that hatred is not fruitful,

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[9] *Ausblicke* (reprint of Vol. 12 of edition of 1922) p. 77.
[10] *Ibid.*

but love is fertile in ereating and pours only from a warm heart. Let us, therefore, not only share our bread with the brethren who return from the war, let us also offer them our sympathetic hearts. It is finally time that a great surge of love should replace the destructive billow. One might say that with clear and terrible logic human plans yielded to divine. But even though every nation appears fragile before such a transformation, the elear-sighted man recognizes in what has penetrated the new form, the old, strong, thoughtful character of the German, unharmed. And whoever is alive will see the German land prospering at a not too distant time; of that we are sure. For a thousand years the German nation has experienced nothing comparable to the event of the last few days. He who understands it, feels his unparalleled power. His significance is much greater and eomes from quite different sources than mine whose historical duty it was to represent it formally. Who would set himself up against this iron destiny? Today the nation has taken its fate into its hands. No one will now hesitate whose strength is of national serviee. The new government, too, may count on us wherever it considers our activities advantageous. None of us will hesitate to do his share will all his heart and according to his strength for the welfare and serviee of peaee.[11]

Now was the time for optimism and faith. Hauptmann forgot the bitter experiences of the past, and lent an encouraging voice and a willing hand to the struggle for the organization of the government. Between November, 1918, and August, 1919, when the Weimar Constitution was adopted, lay the most dangerous period. It was the embryonic state of the German Republic. The temporary government was faced by many serious problems that had to be settled at once. Some of these were the immediate demobilization and the consequential unemployment as the returning troops poured into Berlin; the question of state support for the unemployed, temporary housing, an eight-hour day, and work for everybody. The transition in production from a war to a peace basis was immediately attempted by a special economic commission. With the beginning of the new year the delegates for the National Convention at Weimar were chosen and Hauptmann again sent a few words to his people. He spoke hopefully of the renewal of the German spirit and his faith in the future of the German Republic. Again he stressed the necessity of ending party strife and factional dispute in order to keep the nation united. There were other serious problems coming up. The allied delegates were meeting at Paris to discuss the peace treaties.

[11] *Kundgebung Berliner Künstler und Dichter*, Acht-Uhr-Abendblatt, Nov. 15, 1918.

Hauptmann, who said, even in August 1914, that this war must be the last among the nations, saw the dangers of a peace settlement to be dictated by the victors in the spirit of hostility. He pleaded for representation of the German government at the parleys in order to make future wars less likely. Hauptmann was particularly disappointed in the lack of understanding and sympathy shown among the nations at the end of the war. Perhaps he was too much the idealist who looked forward to a new basis of international understanding and was once more discouraged to find no signs of friendly overtures. He hoped that the victorious Allies would lead the way and carry out President Wilson's slogans, "A war to end war," and "Peace without victory." Instead he saw East Prussia severed from the main part of the Reich and a new effort on foot to give Poland another section of Silesia. With disappointment and pessimism he spoke of the probable decision of the Council at Paris: "We are a defeated nation and it is the bitterest truth, the bitterest disappointment for mankind that in the year 1921 there are still victorious and defeated nations."[12]

For Hauptmann the strongest element in nationalism must be the greatest human quality which is also the strongest bond of internationalism. In his Shakespeare essay are the words: "The strongest element in the national is also the strongest element in universal humanity. Healthy roots implanted in the national soil always bear fruit universally relished. There is only one final and highest duty for a strong and noble people, to be worthy of its strength through accomplishments for a common mankind."[13] At a Goethe celebration in Frankfurt, he stressed the symbol of common humanity: "It is not right to consider only the sword as the symbol of nationalism; the spade of the peasant, the hand of the workman, the trowel of the mason, the head of the thinker seem much better symbols to me."[14]

[12] "Kundgebung in der Philharmonie: Über Oberschlesien" (printed in *Vossische Zeitung*, July 16, 1921).

[13] "Deutschland und Shakespeare," *Jahrbuch d. d. Shakespeare-Gesellschaft*, Vol. 51, 1914.

[14] ' Goethe," *Frankfurter Zeitung*, March 1, 1922.

Hauptmann has been honored during his lifetime as no other poet in Germany since Goethe. In the words of an able literary critic, "One feels today in Germany, and probably not only in Germany, that, on account of the peculiar events of the time, a poet has grown up with them and above them for eternity. He has created in a new and individual manner monuments always valid, always touching."[15]

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[15] Julius Bab in *Deutsches Drama* (edited by Robert F. Arnold), 1925, p. 725.

DEFINING COURTLY LOVE

JOHN WILCOX

A GLANCE through the well-known books touching on Courtly Love will bring out a great variety of ideas put down as part of that system. Seven of the common sets of ideas are considered here. They are:

(1) Medieval ideas of how people in love behave.

(2) Conceits about personified or deified Love installed in a regal court.[1]

(3) The problem of the historicity of courts of noble women adjudicating lovers' disputes.

(4) The nature of love in medieval court circles.

(5) The ideas of love developed in Provençal poetry.

(6) The doctrines of love developed in the literature patronized by Marie de Champagne in the latter part of the twelfth century.

(7) Ideas developed by the alteration of these doctrines in other times and places.

Courtly Love cannot be an omnibus for all conventions, sentiments and emotions of the Middle Ages and remain intelligible. The center of the problem of definition, it seems to me, is found in the sixth item, for the Courtly Love doctrine of twelfth-century northern France was probably the center for expansion into other times and literatures.

What, then, were the ideas of Courtly Love developed in the romances of Chrétien de Troyes and the treatise *De Arte Honeste Amandi* by Andreas Capellanus? I shall offer my answer first, and defend it afterwards. Courtly Love, in the works under the patronage of Marie de Champagne, has three essential elements, the worship of woman, doctrinaire free love, and the partial

[1] For example, Nielson, W. A., *The Origins and Sources of the Court of Love* (Boston, 1899).

sublimation[2] of sexual impulses through chivalric activity. This definition ignores the familiar material about how people in love behave, much of which is older than Ovid and as young as the latest best seller; I cannot see how this material enters into the essence of the doctrine. All the conceits of the god of love are similarly laid aside. The question of the existence of courts of love is almost wholly irrelevant. I believe Marie and her group developed Courtly Love out of elements of medieval courtly life and of Provençal lyric poetry.

The characteristic elements of Courtly Love as expressed in a romance would be about as follows: A man of knightly quality falls in love with some noble lady, perhaps another knight's wife. After manifesting many of the symptoms of being in love, such as loss of appetite, sleeplessness and even fainting, he finally tells her his love and asks to be her servant. In response to his wooing, she promises her favors after he proves his love by some perilous and generally distant adventure. During his absence each remains true to the other. When he returns successful, she accepts him in carnal love as best she can under the obvious necessity of secrecy from her family and the world. Her love makes him a finer and braver man; it inspires him to greater feats of valor and closer adherence to chivalric ideals. Everything he does for the rest of his life is subordinated wholly to her wishes, even though they are pure caprice. Late in life they may separate and save their souls through penance and fasting. The authors and their characters deem such a Courtly Love relationship, though a sin in the eyes of the Church, beautiful and chaste; it is, they would say, permanent, loyal and ennobling. With this in mind, Andreas wrote his solemn codification of its rules in the name of chaste love.

The first hints of the doctrines of Courtly Love appeared, according to Mott,[3] in the early twelfth-century troubadours of Provence, and were there given lasting expression by Bernart de

[2] This term is introduced here because it is the only one in currency that conveys the idea of a conscious or unconscious diversion of sexual *libido* into non-sexual activity.

[3] Mott, L. F., *The System of Courtly Love* (Boston, 1896).

Ventadorn and his contemporary lyric poets. Bernart, like some of his fellows, was a man of humble origin attached to the court of an important noblewoman; he served that great personality, Eleanor of Aquitaine. His lyrics are naturally full of a subservience to her, and yet they echo the sensuous love she encouraged in him. Mott points out a large number of elements in his poetry that reappeared in Courtly Love romances.

When Eleanor's daughter Marie became Countess of Champagne in the north, she set up at Troyes about 1165 a court with literary pretensions. The ideas of love found in the lyrics of the troubadours were elaborated into a rather flexible code by Marie and her group. Her chief poet, Chrétien, incorporated the doctrines in progressive development in his first three extant romances. From the beginning Chrétien was a love poet. We can see this from his early writings, now lost, a translation of Ovid and a romance of Marc and Iseult.[4] "All good things come from love," he wrote in a lyric.

In *Erec et Enide*,[5] Chrétien's earliest extant romance, the poet has not yet developed courtly doctrines. A story of conjugal love with some emphasis on the physical aspects of passion, it has only one significant point for us. After Erec and Enide are married, he loves her so exclusively that he neglects all knightly pursuits until her tears, started by his shameful degeneration, drive him forth in quest of brave adventures. During this quest he lives a continent life, although Enide accompanies him everywhere. In this story the man has the authority and the manners are not in accord with chivalric standards, but there is a clear example of the diversion of erotic energy to activities not related directly to love or to the beloved, in short, an example of sublimation.

In the romance that followed, *Cligès*,[6] manners are greatly refined, especially in the courteous treatment of women. Compared with its predecessor, this romance is on the way to the courtly adoration of woman; but it has not actually passed beyond a

[4] See first lines of *Cligès* (edited by W. Foerster, Halle, 1884).
[5] Edited by W. Foerster (Halle, 1890).
[6] Edition cited in note 4.

point of virtual equality between the sexes. While conjugal love is again represented in its two love stories, greater freedom is recognized, pointing, as we can see afterwards, in the direction of free love. The difficulty of preserving love in wedlock is assumed in the lines near the close; the love of Cligès for Fenice is described:

> De s'amie a feite sa fame,
> Meis il l'apele amie et dame,
> Que por ce ne pert ele mie,
> Que il ne l'aint come s'amie,
> Et ele lui tot autresi,
> Con l'an doit feire son ami.[7]

Alexander too would rather lose Soredamors than possess her against her desire. Emphasis on personal choice is still greater with Fenice who is legally married to a man she does not love. She uses a magic potion prepared by her nurse to deceive her husband with an illusory embrace, and thereby remains untouched until she can give herself to her lover, offering these reasons:

> "Miauz voudroie estre desmanbree
> Que de nos deus fust remanbree
> L'amors d'Iseut et de Tristan,
> Don tantes folies dit l'an,
> Que honte m'est a raconter.
> Je ne me porroie accorder
> A la vie qu'Iseuz mena.
> Amors an li trop vilena,
> Car ses cors fu a deus rantiers
> Et ses cuers fu a l'un antiers." [8]

Chrétien is avowedly following the guidance of his patroness Marie in his third romance, *Le Chevalier de la charette*,[9] and we naturally have the most important embodiment of the full doctrine of Courtly Love in this account of the love of Lancelot and Queen Guinevere. The poet does not mention the beginning of their relations, contenting himself with a lengthy episode from what might be called the middle period. The story starts with Meleagant's capture of the Queen from the inadequate protection of Sir Kay. Lancelot loses his horse in the beginning of the pursuit. Following on foot, he is assured by a carter that if he would

[7] *Cligès*, vss. 6753–6758. [8] *Ibid.*, vss. 3145–3154.
[9] Edition by W. Foerster (Halle, 1899).

get on the cart (a disgraceful thing to do) he might get news of the Queen the next day.

> Tant solemant deus pas demore
> Li chevaliers que il n'i monte.[10]

But this momentary delay later proves a grievous sin to his love; for nothing should a lover hesitate in the service of his lady. Lancelot's concentration on her is normally complete, for the next day

> . . . cil de la charette panse
> Con cil qui force ne deffanse
> N'a vers amor qui le justice;
> Et ses pansers est de tel guise
> Que lui meïsmes an oblie,
> Ne set s'il est ou s'il n'est mie,
> Ne ne li manbre de son non,
> Ne set s'il est armez ou non,
> Ne set ou va, ne set don vient;
> De rien nule ne li sovient
> Fors d'une sole, et por celi
> A mis les autres an obli.[11]

When his adventures bring him to a damsel who will give needed hospitality only on the condition that he sleep with her,[12] he agrees reluctantly and eventually goes through the test chastely, for he can love only one.[13] Through a series of romantic and chivalric adventures, Lancelot steadfastly follows his love and keeps her uppermost in his mind. After he reaches Meleagant, he will not delay on account of his wounds. Almost vanquished in the ensuing fight, Lancelot sees the Queen looking on

> Et force et hardemanz li croist,
> Qu'amors li fet mout grant aie . . .[14]

The moment the Queen promises Meleagant's father to ask Lancelot not to kill his enemy, Lancelot hears and desists, as the poet explains, because

> Mout est qui aimme obeissanz
> Et mout set tost et volantiers,
> La ou il est amis antiers,
> Ce que s'amie doie pleire:
> Donc le dut Lanceloz bien feire . . .[15]

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[10] *Ibid.*, vss. 364–365.
[11] *Ibid.*, vss. 715–726.
[12] *Ibid.*, vss. 954.
[13] *Ibid.*, vss. 1240–1244.
[14] *Ibid.*, vss. 3738–3739.
[15] *Ibid.*, vss. 3816–3820.

Soon after, the victorious Lancelot rushes to his rescued love, but she half-jokingly shows great displeasure with him; he leaves completely crushed. She hears a rumor of his capture and mourns bitterly in secret.

> Tel duel a de sa cruauté,
> Que mout an pert de sa biauté.[16]

Because rumor comes that the Queen is dead, Lancelot too is in despair. His companions prevent his suicide. But all rumors are disproved and the lovers reunited. Guinevere then says her cold reception was a punishment, not for his riding in the cart, but for his hesitancy to mount it. All is forgiven.[17] That night despite Sir Kay's guard, Lancelot forces the bars to her window and the lovers are in bliss.

> Mes toz jorz iert par moi teüe,
> Qu'an conte ne doit estre dite.[18]

The last episode, added by Godefroi de Leigni with Chrétien's consent, has another story of obedience. When Lancelot unexpectedly appears in disguise and fights in the tournament with his usual success, Guinevere suspects that the unknown knight is her lover and sends him word to do his worst. For the rest of the day he endures the gibes of all for his bad fighting. Then she knows it is Lancelot.

Lancelot reveals Marie's and Chrétien's full doctrine of Courtly Love. Love symptoms are shown in slight degree, and the incidental need of secrecy is not stressed. But the poet gives full emphasis to the worship of woman, doctrinaire free love, and partial sublimation in chivalric activity.

Le Chevalier au lion,[19] although it came later, is not so full in its treatment of love philosophy. Marvelous adventures, rather than love, are at times the main issue. There are many more passages of conventional ideas about love than in any of its predecessors. At times Chrétien makes Yvain talk a textbook

[16] *Le Chevalier de la charette*, vss. 4207–4208.
[17] *Ibid.*, vss. 4490 ff.
[18] *Ibid.*, vss. 4698–4699.
[19] Chrétien de Troyes, *Yvain* (edition by W. Foerster, Halle, 1887)

on love.[20] He promises absolute submission to his lady[21] and marries her. But his happiness is at the expense of his valor. Gawain exclaims to him:

> "Honiz soit de sainte Marie,
> Qui por anpirier se marie!
> Amander doit de bele dame,
> Qui l'a a amie ou a fame,
> Si n'est puis droiz que ele l'aint,
> Que ses los et se pris remaint." [22]

Yvain then departs for Arthur's court after getting his wife's permission and hearing her assurance that she will give up love of him if he stays over a year. He forgets to go back. His wife then sends him an insulting message, and he goes mad, wandering in the fields like a beast, Chrétien's one example of love-madness. When magical aids restore his senses, he regains the love of his wife by many adventures and brave feats as the incognito knight with the lion.

Worship of woman and chivalric sublimation are emphasized by the story as a whole. Sublimation is contrasted with extreme uxorious degeneration, for which Yvain is forced to atone. Though love is conjugal, there are a few hints of free choice. Conventional ideas about love are incorporated in heavy patches, but they do not seem important to the poet.

A few years after Chrétien, Andreas, who was acquainted with Marie's ideas and associates, produced a fair-sized Latin volume, *De Arte Honeste Amandi*.[23] "Est igitur primo videre . . . ," he explains with a parade of scientific organization in his "Accessus ad amoris tractatum." "Est igitur primo videre, quid sit amor, et unde dicatur amor, et quis sit effectus amoris, et inter quos possit esse amor, qualiter acquiratur amor, retineatur, augmentetur, minuatur, finiatur, et de notitia amoris mutui, et quid unus amantium agere debeat altero fidem fallente." He speaks solemnly of courts in which arguments in love casuistry were debated before noble women judges, and decisions announced. For example, he says that Marie of Champagne in 1174 handed down the fa-

[20] *Ibid.*, vss. 2015–2036.
[21] *Ibid.*, vss. 1996 ff.
[22] *Ibid.*, vss. 2487–2492.
[23] Edited by E. Trojel (Havniae, 1892).

mous decree that love cannot exist between man and wife. At one point[24] he introduces twelve formal precepts of Courtly Love:

1. Avaritiam sicut nocivam pestem effugias et eius contrarium amplectaris.
2. Castitatem servare debes amanti.
3. Alterius idonee copulatam amori scienter subvertere non coneris.
4. Eius non cures amorem eligere, cum qua naturalis nuptias contrahere prohibet tibi pudor.
5. Mendacia omnino vitare memento.
6. Amoris tui secretarios noli plures habere.
7. Dominarum praeceptis in omnibus obediens semper studeas amoris aggregari militiae.
8. In amoris praestando et recipiendo solatia omnis debet verecundiae pudor adesse.
9. Maledicus esse non debes.
10. Amantium noli exsistere propolator.
11. In omnibus urbanum te constituas et curialem.
12. In amoris exercendo solatia voluntatem non excedas amantis.

This expression of the doctrine of the group at Troyes enjoins the chivalric virtues of generosity (1), truthfulness (5) and courtesy (11); affirms the courtly lover's virtues of constancy (2), secrecy (6), obedience (7), modesty (8) and moderation (12); and prohibits the seduction of another man's mistress (3), love for a woman one would be ashamed to marry (4), slander (9) and babbling (10). Here Andreas says nothing about how people in love behave.

Much later[25] he gives thirty-one rules that overlap the twelve, but in them he adds much that might be called description rather than command. Incidentally these rules are not given as the author's own, but are incorporated as a pretended quotation. They are:

1. Causa conjugii ab amore non est excusatio recta.
2. Qui non celat, amare non potest.
3. Nemo duplici potest amore ligari.
4. Semper amorem crescere vel minui constat.
5. Non est sapidum, quod amans ab invito sumit coamante.
6. Masculus non solet nisi plena pubertate amare.
7. Biennalis viduitas pro amante defuncto superstiti praescribitur amanti.
8. Nemo sine rationis excessu suo debet amore privari.

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[24] *De Arte Honeste Amandi*, pp. 105–106. [25] *Ibid.*, pp. 310–312.

9. Amare nemo potest, nisi qui amoris suasione compellitur.
10. Amor semper consuevit ab avaritiae domiciliis exsulare.
11. Non decet amare, quarum pudor est nuptias affectare.
12. Verus amans alterius nisi sui coamantis ex affectu non cupit amplexus.
13. Amor raro consuevit durare vulgatus.
14. Facilis perceptio contemptibilem reddit amorem; difficilis eum carum facit haberi.
15. Omnis consuevit amans in coamantis aspectu pallescere.
16. In repentina coamantis visione cor contremescit amantis.
17. Novus amor veterem compellit abire.
18. Probitas sola quemque dignum facit amore.
19. Si amor minuatur, cito deficit et raro convalescit.
20. Amorosus semper est timorosus.
21. Ex vera zelotypia affectus semper crescit amandi.
22. De coamante suspicione percepta zelus et affectus crescit amandi.
23. Minus dormit et edit, quem amoris cogitatio vexat.
24. Quilibet amantis actus in coamantis cogitatione finitur.
25. Verus amans nil beatum credit, nisi quod cogitat coamanti placere.
26. Amor nil posset amori denegare.
27. Amans coamantis solatiis satiari non potest.
28. Modica praesumptio cogit amantem de coamante suspicari sinistra.
29. Non solet amare, quem nimia voluptatis abundantia vexat.
30. Verus amans assidua sine intermissione coamantis imaginatione detinetur.
31. Unam feminam nil prohibet a duobus amari et a duabus mulieribus unum.

These rules can all be classified under the headings (*a*) worship of woman (24, 25, 26, 28, 30), (*b*) doctrinaire free love (1, 3, 5, 9, 10, 11, 12, 17, 27), (*c*) chivalric sublimation (18, 29), (*d*) symptoms or signs of true love (8, 14, 15, 16, 20, 21, 22, 23), (*e*) incidental conditions to love (4, 6, 7, 19, 31) and (*f*) need of secrecy (2, 13). Nothing is said in these rules about noble birth of a servant, but the general import of Chapter VI of the First Book is that nobility springs from virtue rather than from high birth.

As Chrétien and Andreas were acquainted with time-honored conventions about love, they may not have thought many of the descriptions put into the romances and the thirty-one rules of Courtly Love peculiar to the courtly system. The presence of such may be merely evidence of a continuity in ideas of love. Courtly Love is not a completely new love; rather it is a set of new ideas about the old emotion. It is adapted in its details to an imaginary romantic society not wholly unlike the society of feudal nobility. It is expressed with a free use of any figures and ideas

about love that might be found in the social and literary inheritance of its sponsors.

In giving the characteristics of the conventions of Courtly Love, some scholars have placed primary emphasis on symptoms or signs and on incidental characteristics. They have made too much of what Professor Reinhard[26] dubs the "pathology of love" as a peculiarity of the courtly system, although, as he points out, such symptoms are at least as old as Sappho. The courtly poets were under no obligation to use only brand-new ideas about love, but what they borrowed need not be confused with their personal property. The reluctance and chaste restraint of the lady has similarly been exaggerated; when it appears, it may be a test of the lover's sincerity or a device to emphasize the great love expressed in a final surrender. The presence of these collateral elements is common in Courtly Love, but they do not help compose the essence of the convention. Dodd[27] also makes too much of the figures of speech which various poets employed in speaking of the personified or deified Love. Whether they reflect "classical," "ecclesiastical," or "feudal" notions of a god of love, they are incidental embroidery, not the essential fabric of Courtly Love dogma.

If we drop such incidental matter, we are back to our initial definition. Let me repeat that I recognize the conventions peculiar to the Courtly Love doctrines of northern France in a story that contains the following characteristics:

A. *The worship of woman.* — The lover assumes the innate superiority of his mistress and gladly lives submissive to her will.

B. *Doctrinaire free love.* — The love is free in the sense that it is the spontaneous expression of mutual desire, unaffected by social, religious or economic pressure. It is free in the sense that obligation ends with the death of desire. Like modern free love, it is a relationship of which the principals are proud. Only a hostile social order makes furtiveness an undesired practical

[26] J. R. Reinhard, *Amadas et Ydoine* (Duke University Press, Durham, N. C.,1927) Chapter III, p. 54.

[27] W. G. Dodd, *Courtly Love in Chaucer and Gower* (Ginn & Co., Boston, 1913).

necessity. It is unrelated to promiscuity or occasional laxness in conduct.

C. Sublimation by chivalric activity. — True love, under the courtly convention, always makes the lover a better knight. He transcends his old records for valor, fair play, generosity, humility and courtesy. His energies are largely devoted to quests. Most of his service to his lady is done at such a distance that his love is largely sublimated.

Underlying social conditions must have fostered the widespread interest in such doctrine, for Courtly Love romance, though not exactly copied from the life of courtly people of the twelfth century, did not come solely from the imagination of the poets and social theorizers. It started as an idealization in fiction of grosser social facts;[28] later social practice undertook undoubtedly to follow, no matter how lamely, the ideal set by romantic fiction. There was, therefore, a constant reciprocal influence between the ideal of romance and the actuality of medieval life.

The worship of woman may have been suggested by the cult of Mary, but the most compelling causative factor must surely have been the social fact of the general superiority of twelfth-century French women over the men of their time. Robust mentally and physically, women dominated all aspects of life. As Marie's indomitable mother was about the greatest of all French women,[29] the expression of feminine dominance in any system Marie patronized might be a foregone conclusion. Aside from the social and political influences, we find another explanation in literary influence. Peire Rogier, the Provençal lyric admirer of Ermengarde of Narbonne, was the first poet to express exaggerated humility of the lover to his lady. In Bernart de Ventadorn a certain humility seemed to arise naturally from the difference in their social level when he addressed Eleanor, but Rogier was kept at a great distance by Ermengarde and was never allowed to pass the limits of convention. "His songs," says

[28] H. O. Taylor, *The Mediaeval Mind*, 3d ed. (The Macmillan Co., New York, 1919) Vol. I, Chapters 23–24.

[29] H. Adams, *Mont-Saint-Michel and Chartres* (Houghton Mifflin, Boston 1913), especially Chapter XI, pp. 198–229.

Mott,[30] "breathe respectful devotion rather than earnest passion." Mott proves that Rogier influenced Chrétien in other aspects of poetry and he believes[31] Rogier was the literary precedent for Chrétien's doctrine of the worship of woman.

The admission of free love to the system was also an idealization of courtly social facts. To both Marie and her mother love was more serious than religion.[32] They were not alone in such belief. This, we must remember, was the century of Abelard and Heloïse. Peire d'Alvernhe had expressed a common thought when he wrote in a Provençal poem, "A man without love-making can be worth no more than an ear of corn without the grain." Likewise Bernard de Ventadorn wrote, "He is indeed dead who does not feel in his heart some sweet taste of love."

Unchristian though it was, human delight in sexual love had never actually given way to the ascetic ideal of the last thousand years. Advocates of Courtly Love furnished a rough rationalization of the conflict; they blandly compromised between desire and dogma by suggesting love for the lusty years and monasticism for old age. Perhaps the medieval recovery of the secular literature of classic times encouraged the more daring to see no sin in responding to the call of an innate impulse toward beauty and voluptuousness in love. Though it be academic heresy, I cannot believe that Chrétien translated Ovid and that Andreas used Ovid as a model for *De Arte Honeste Amandi* without being touched by paganism of some kind.

Because feudal laws and customs had made marriage too subservient to economic and social ends for love in marriage to be more than a lucky accident, the advocates of Courtly Love did not hope for love in marriage, and held rather that love was incompatible with matrimony. "Love cannot extend her laws over husband and wife," Marie decreed, "since the gifts of love are voluntary, and husband and wife are the servants of duty." Like the modern advocates of free love, they placed the center of their attention on love itself, not on a social institution, and they

[30] Mott, *op. cit.*, p. 16.
[31] *Ibid.*, p. 23.
[32] Adams, *op. cit.*, p. 218.

were willing to transgress all sacred and secular laws that stood in the way of untrammeled love.

Feudal civilization was still much in need of courageous men of action. Fortunately Courtly Love doctrine contained an important element that opposed the softening of the masculine fiber. As knightly performance was the only virtue by which a lover could deserve the graces of his beloved and as further deeds of valor had to be performed to show how much her love had enhanced his courage and ennobled his life, there was little danger of a good man's languishing in enervating dalliance. This conversion of the force of love into an incentive for stirring action surely recommended itself to such active, practical women as Eleanor, who would wish to be rid of amatory distractions at times so that they could go about their own important affairs. Besides, such long-distance control added to that sense of power over men which women are always glad to exert. All this kept the doctrine of Courtly Love from being a defense of sheer sensuality, for under the promise of eventual or occasional voluptuousness, the system required much elevation of primal impulse into deeds of heroism.

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RELATION OF DEGREE OF LEARNING TO DEGREE OF RETENTION

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THIS preliminary report is concerned with the following problems: (1) As the degree of learning is varied, will the degree of retention vary proportionally, that is, will 50 per cent overlearning increase the amount retained by 50 per cent or by some other percentage? (2) Will the relation between the degree of learning and the degree of retention vary with the length of the interval between learning and recall? For example, if 50 per cent overlearning increases retention by 40 per cent after a one-day interval, will this percentage of retention increase or decrease with the length of the interval?

A previous study[1] which dealt with the same problems indicated that a certain degree of overlearning, at least 50 per cent, was highly economical from the standpoint of retention; and that the larger the interval between learning and recall, the greater was the economy. Further increases of overlearning proved, however, to be uneconomical for most intervals. These results were contradictory to Luh's conclusions.[2] In the two experiments just referred to only ideational material was memorized, such as nouns and nonsense syllables. The present experiment was conducted to supplement these studies. Instead of memorizing reading material, the subjects learned a skilled movement, following a maze.

We had three stages of learning: 100 per cent learning, 50 per cent overlearning and 100 per cent overlearning. The intervals were 1, 2, 3, 4, and 7 days. Retention was measured (1) by the

[1] Krueger, Wm., "Effect of Overlearning on Retention," *Journ. Exper. Psychol.*, 12 (1929) : 71–78.

[2] Luh, C. W., "The Conditions of Retention," *Psychol. Monographs*, 31 (1923) : No. 142.

number of trials necessary to learn and relearn the mazes, (2) by the time required, and (3) by the number of errors made. The three stages of learning were arbitrarily determined. By 100 per cent learning we mean the degree of attainment at which the subject was first able to trace the correct path without making an error. By 50 per cent overlearning we mean that the trials were continued until the number was increased by one half of the number of trials required for the 100 per cent stage. If, for example, 6 trials were needed to learn a maze to the 100 per cent stage, 3 more were added; if 8 trials were necessary, 4 more were given, and so on. For such odd-numbered trials as 5, 7, 9, one half of the next higher number was added, namely, one half of 6, one half of 8, and so on. In similar manner 100 per cent overlearning means that the subject was given twice the number of trials required for learning the maze to 100 per cent mastery.

Simple finger mazes were used. Only one new maze was learned on any one day. The subject was to trace the correct path with one finger. He was seated at a table; instead of blindfolding him, we placed a white pasteboard horizontally in front of him about 10 inches above the maze. This did not affect him except by efficiently preventing him from seeing the maze or the movements of his hand. After some preliminary work, eight mazes which seemed of equal difficulty were finally selected. Different groups of college students were used as subjects for the various intervals; it appeared to the experimenter that the groups were well equated. The same eight mazes were used for each interval, and the same group of subjects for each of the three stages of learning for any one interval. We employed two methods to eliminate the possibility that the differences between the learning and retention scores might be due to practice: (1) All subjects had to master four practice mazes before being tested for the data used in this study; (2) one half of the subjects performed the experiment in the order of 100, 150 and 200 per cent learning, and the other half took them in the reverse order of 200, 150 and 100 per cent. To avoid the possibility that the differences in retention scores might be due to differences in the difficulty of the mazes, each subject learned a different maze for each given degree

of practice. The average retention score for each condition was based on the retention scores for all eight mazes, or multiples thereof. After the required interval had passed, the subjects relearned the mazes up to the 100 per cent stage. The scores for the one-day interval were based on the average of 16 scores (2 scores from each of the 8 mazes); for the two-day interval, on the average of 24 scores (3 scores for each of the 8 mazes); for the three-day and the four-day intervals, on the average of 16 scores; and, for the seven-day interval, on the average of 8 scores.

TABLE I

AVERAGE NUMBER OF TRIALS TO LEARN AND TO RELEARN A MAZE

Interval (days)	Degree of learning (percentage)	Trials required to learn a maze (av.)	Trials for 100 per cent learning (av.)	S.D. for learning score	P.E. for learning score	Trials to relearn a maze 100 per cent (av.)	S.D. for relearning score	P.E. for relearning score
1	100	4.19	4.19	1.47	.25	2.78	1.65	.28
1	150	7.87	5.00	1.73	.29	2.19	.82	.14
1	200	9.42	4.71	1.64	.28	2.13	.92	.16
2	100	4.57	4.57	1.35	.23	3.42	1.35	.23
2	150	7.33	4.67	1.42	.24	2.96	1.43	.24
2	200	9.58	4.79	1.36	.23	1.96	1.02	.17
3	100	4.69	4.69	1.37	.23	3.56	1.77	.30
3	150	6.50	4.19	1.18	.20	2.25	.66	.11
3	200	8.62	4.31	1.12	.19	1.88	.86	.14
4	100	4.56	4.56	1.61	.27	3.85	1.83	.21
4	150	6.93	4.40	1.11	.19	2.47	.99	.17
4	200	9.26	4.63	1.35	.26	1.96	1.29	.22
7	100	4.30	4.30	1.58	.39	3.30	.83	.19
7	150	8.00	4.78	1.17	.28	2.12	1.14	.27
7	200	9.56	4.78	1.09	.26	2.05	1.11	.26

In Table I is found, for each of the fifteen conditions, the average number of trials necessary (1) to learn and (2) to relearn a maze. The third column gives the average number of trials

needed to achieve the specified degree of learning; the fourth, the average number of trials required to attain 100 per cent proficiency; the seventh column, the average number of trials required to relearn the mazes. The other columns give the measures of variability, such as the Standard Deviations and the Probable Errors for each average.

TABLE II

AVERAGE PERCENTAGE OF RETENTION AS MEASURED BY THE SAVING METHOD

Interval (days)	Degree of learning (percentage)	Retained as measured by saving method (av. percentage)	S.D. for retention score	P.E. for retention score	Reliability of difference between stages of learning		
					Means for 100 and 150 per cent	Means for 150 and 200 per cent	Means for 100 and 200 per cent
1	100	37.50	35.40	6.01	2.12		
1	150	54.50	31.05	5.27		1.99	
1	200	67.93	25.90	4.40			4.08
2	100	31.12	27.15	3.80	1.60		
2	150	40.57	32.40	4.53		4.70	
2	200	66.83	28.35	3.97			6.53
3	100	27.12	27.90	4.85	2.72		
3	150	44.44	21.75	4.10		2.96	
3	200	63.37	29.25	4.95			5.23
4	100	20.12	27.45	4.47	3.59		
4	150	42.53	24.15	4.11		2.77	
4	200	60.73	30.00	5.10			5.99
7	100	17.83	24.90	5.98	1.40		
7	150	39.50	28.35	6.80		1.45	
7	200	53.50	28.80	6.81			3.72

By inspection it may be seen that the learning scores, based upon 100 per cent mastery, were approximately the same for all fifteen conditions. Therefore, any difference in the amounts retained cannot be explained by differences in the learning scores.

The retention scores are given in Tables II, III, and IV.

Table II gives the average retention scores for all conditions as derived by the "saving method." By the usual formula, these values were computed from the 100 per cent learning and relearn-

TABLE III

AVERAGE RETENTION AS MEASURED BY THE DIFFERENCE IN TIME REQUIRED TO LEARN AND RELEARN A MAZE (IN SECONDS)

Interval (days)	Degree of learning (percentage)	Difference of time between learning and relearning a maze (av. in seconds)	S.D. for retention score	P.E. for retention score	Reliability of difference between stages of learning		
					Means for 100 and 150 per cent	Means for 150 and 200 percent	Means for 100 and 200 per cent
1	100	74.25	63.60	10.81	.91		
1	150	90.00	76.50	13.00		.80	
1	200	103.75	60.60	11.30			1.83
2	100	66.75	55.50	7.77	1.85		
2	150	80.25	72.60	10.16		2.39	
2	200	124.04	71.70	10.04			4.54
3	100	68.87	63.00	10.41	1.25		
3	150	83.88	53.70	6.13		2.02	
3	200	116.25	87.30	14.84			2.63
4	100	47.99	51.30	8.72	.92		
4	150	57.13	45.00	7.65		3.62	
4	200	103.76	58.50	9.94			4.22
7	100	32.62	28.12	6.66	2.72		
7	150	53.75	29.70	6.13		1.83	
7	200	80.50	55.50	13.33			3.21

ing scores of Table I. Column three contains the average percentage retained for each stage of learning and for the various intervals. The S. D.'s and P. E.'s for these scores are in the next two columns. The last three columns give the ratio of the difference between the means for the P. E. (difference).

Table III gives the average absolute difference between the time required for learning and the time required for relearning. Only the time necessary for learning a maze to the 100 per cent

stage and for relearning were used to make the calculations. The time consumed during the overlearning is not included in the scores. Table IV shows the average absolute difference between errors made during learning and errors made during relearning for each of the fifteen conditions; only the errors made during the learning and relearning up to the 100 per cent stage were considered.

TABLE IV

AVERAGE RETENTION AS MEASURED BY THE DIFFERENCE IN ERRORS MADE WHILE LEARNING AND RELEARNING A MAZE

Interval (days)	Degree of learning (percentage)	Difference between number of errors made in learning and relearning a maze (av.)	S.D. for retention score	P.E. for retention score	Reliability of difference between stages of learning		
					Means for 100 and 150 per cent	Means for 150 and 200 per cent	Means for 100 and 200 per cent
1	100	15.12	11.10	1.89	2.23		
1	150	21.62	13.10	2.22		1.16	
1	200	24.90	10.20	1.73			3.82
2	100	16.12	11.70	1.64	1.27		
2	150	19.17	12.30	1.72		2.70	
2	200	24.16	12.00	1.68			3.41
3	100	9.99	12.15	2.07	.93		
3	150	12.43	11.45	1.95		.78	
3	200	14.59	11.80	2.01			1.59
4	100	5.06	5.90	1.00	2.07		
4	150	8.90	9.15	1.56		2.28	
4	200	13.50	7.80	1.33			5.08
7	100	5.62	6.10	1.46	3.04		
7	150	11.50	5.30	1.27		1.50	
7	200	16.00	11.40	2.73			3.34

The retention scores for Tables II, III and IV indicate that for every interval the 100 per cent overlearning gave the highest scores, while the 100 per cent learning always yielded the lowest scores. Though the ratios of the differences between two ob-

tained means to their P. E. (difference) do not always give a high statistical validity to the difference, the consistency of the results is rather general and acceptable.

TABLE V

RATIOS OF DEGREE OF LEARNING AND CORRESPONDING RATIOS OF RETENTION

Ratio of learning	Intervals in days				
	1	2	3	4	7
	Ratios of retention as measured by the saving method				
1.50	1.48	1.30	1.64	2.11	2.21
1.33	1.24	1.62	1.42	1.43	1.35
2.00	1.81	2.14	2.15	3.02	3.00
	Ratios of retention as measured by absolute difference in time				
1.50	1.34	1.20	1.22	1.19	1.63
1.33	1.15	1.54	1.38	1.81	1.50
2.00	1.39	1.86	1.69	2.16	2.46
	Ratios of retention as measured by absolute difference in errors				
1.50	1.43	1.18	1.24	1.76	2.06
1.33	1.15	1.26	1.17	1.52	1.39
2.00	1.64	1.49	1.46	2.67	2.85

In order to discover whether the relation between the degree of learning and the degree of retention varied with the interval, we calculated, as in our previous experiment, the ratios between the retention scores for 100 and 150 per cent learning, for 150 and 200 per cent, and for 100 and 200 per cent. The respective degrees of learning stand in the ratios 1 : 1.5, 1 : 1.33 and 1 : 2. By dividing the retention score for each interval by the retention score for the lesser degree of learning, we obtained the corresponding ratios of retention. For example, according to Table II, the retention scores for the one-day interval were 37.50, 54.50 and 67.93. By dividing 54.50 by 37.50 we obtain the ratio of retention for the 100 and 150 per cent learning scores; by dividing 67.93 by

54.50, the ratio of retention between the 150 and 200 per cent stages of learning; by dividing 67.93 by 37.50, the ratio of retention between 100 and 200 per cent learning. These ratios are given in Table V. To find the relative efficacy of overlearning, we may note that 50 per cent overlearning increased retention by 48 per cent for the one-day interval, 30 per cent for the two-day interval, 27 per cent for the three-day interval, etc., when measured by the saving method. In like manner the effect of increasing the number of repetitions from 150 to 200 per cent (or an additional 33.3 per cent) is stated. Table V also gives the ratios as computed from the retention scores in terms of time and errors.

The data of Tables II, III and IV indicate four things:

(1) As the degree of learning is increased from 100 to 150 per cent, the corresponding increase in retention was less than 50 per cent for the one-day, two-day and three-day intervals, but with the four-day and the seven-day intervals the increase in retention was always more than 50 per cent with one exception. This held true for all three types of retention scores.

(2) As the degree of learning was increased from 150 to 200 per cent (or by an additional 33.3 per cent), retention was always increased by more than 33.3 per cent, with the exception of the one-day interval when retention was measured by the saving method and the absolute difference in time; but this did not hold true for retention scores based on errors.

(3) There seemed to be no consistent increase or decrease of retention as the interval was varied.

(4) The increase of the number of repetitions from 150 to 200 per cent was proportionally more economical than the increase from 100 to 150 per cent.

These findings substantiate my previous results, that additional learning or practice within the range of our experimental conditions increased retention consistently. By further experimentation we hope to discover the conditions under which the law of diminishing returns sets in.

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REPORT OF AN ACCESSORY PANCREAS IN THE DOG

EPHRAIM B. BOLDYREFF

GENERAL CONSIDERATIONS

THE importance of the pancreas as a vital organ is recognized by all; its digestive function as the chief gland of the alimentary canal is firmly established as well as its rôle in the control of carbohydrate metabolism. There is also strong evidence that the pancreatic function is closely associated with other metabolic processes and probably has some relation to the phenomena of immunity (1, 3). In spite of rapid progress made in the field of physiology of the pancreatic function some important problems concerning the morphology and functional relation of the glandular cells are still awaiting solution. The generally accepted theory of the specific activity of the islet tissue is being contradicted by histological evidence and experimental findings (2, 7, 8, 11). The anatomical anomalies of the pancreas should, therefore, be of some interest.

INSTANCES OF OCCURRENCE

In mammals there are known to be two types of pancreatic anomaly: (1) aberrant pancreas found in men, sheep, pigs, cats and dogs, and (2) pancreatic bladder, which is found only in cats (4–6).

The occurrence of accessory pancreas is comparatively rare. The first case in man was reported by Klob in 1859. In 1904 Warthin (10) published some new cases and compiled a complete list of publications which had appeared up to that time devoted to the incidence of accessory pancreatic tissue in man. Simpson (9) in 1928 made a review of the 151 human cases reported in the literature. Nevertheless, most of the textbooks of anatomy either

make a very casual reference to this subject or do not mention it.

The most frequent locations of the accessory pancreas are: the wall of the stomach, the wall of the duodenum or jejunum, the wall of the gall-bladder, and in a few instances the lower part of the small intestine.

ACCESSORY PANCREATIC TISSUE IN THE DOG

There are only three cases of canine accessory pancreas found in the literature (Higgins, 4). In two of these the aberrant pancreatic tissue was located in the wall of the gall-bladder, and in one it was found 32 cm. below the pylorus. The cellular structure of the accessory pancreas is usually similar to that of the normal pancreatic tissue. In the dog, however, according to Mann (6) and Higgins (4) the islands of Langerhans are either poorly developed or even altogether absent. Mann (6) reported two cases in one of which he found in the accessory pancreas a "decrease in island tissue and particularly in the size of the islands," but in the other no islet tissue was detected at all, as is evidenced by his microphotographs. Higgins states that in aberrant pancreas of the dog described by him, "Pancreatic islets were not definitely identified." In all three cases the pancreatic ducts were present.

CASE REPORT

Male mongrel bull-dog, 3 years old, weighing 14,800 grams, was operated upon at the Pavlov Physiological Institute of the Battle Creek Sanitarium for the experimental study of a problem in intestinal physiology. When the bowels were lifted, a well-defined accessory pancreas was found in the mesentery of the lower ileum. This little accessory gland was connected with the lumen of the gut by a small duct. The size of the accessory pancreas was $15 \times 10 \times 6$ mm. It was situated 89 cm. below the main pancreatic duct of the principal gland. The accessory pancreas was immediately removed and fixed in 10 per cent formalin. The microphotographs accompanying the text were made from the stained sections in Dr. A. S. Warthin's laboratory at the University of Michigan. In Plate XXXIX, Figure 1, is shown the

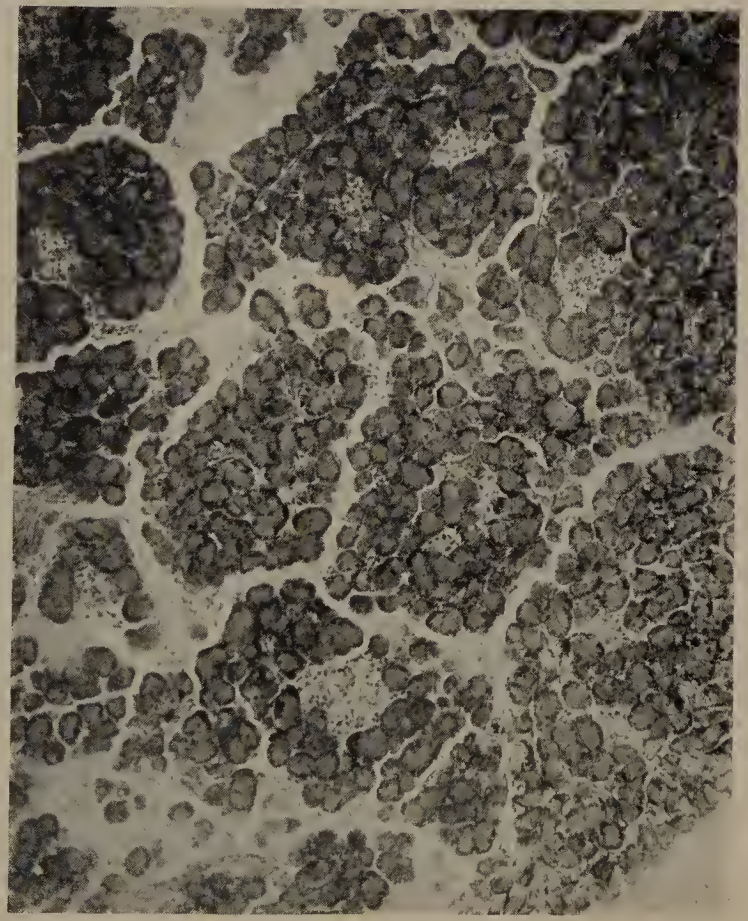

FIG. 1. Microscopic structure of dog's accessory pancreas (× about 70)

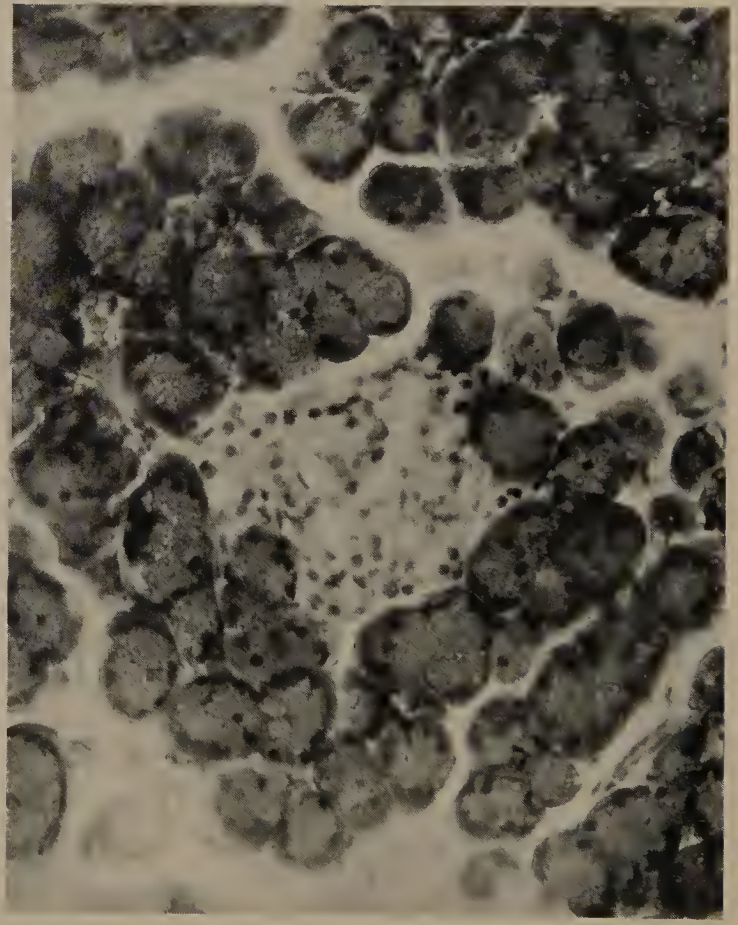

FIG. 2. Microscopic structure of dog's accessory pancreas; the large island of Langerhans is seen in the center of the photograph (× about 270)

microscopic structure of the accessory pancreas which appears to be identical with the cellular structure of the normal pancreatic tissue. Most of the gland is composed of secretory acini; these cells have more distinct outlines and darker color; several groups of islands of Langerhans are also shown on the photograph (groups of cells of lighter color with less distinct outlines). Plate XXXIX, Figure 2, shows the same specimen under greater magnification. No decrease of the islet tissue either in the size or in the number of islands is observed in this case, as is demonstrated by the microphotographs. Therefore, this accessory gland, as far as the morphological structure is concerned, is in no way different from normal functional pancreas.

The author wishes to thank Professors A. S. Warthin and C. V. Weller, of the University of Michigan, for their obliging courtesy in enabling him to obtain microphotographs for this article. To Miss J. F. Williams, of the Battle Creek Sanitarium, grateful acknowledgment is due for very substantial aid in making tissue sections.

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STUDIES ON THE IMMUNOLOGY OF MENINGOCOCCI ISOLATED FROM EPIDEMIC CEREBROSPINAL FEVER IN DETROIT *

BERT U. ESTABROOK AND JOHN F. NORTON

EPIDEMIC cerebrospinal fever has existed in Detroit during the past thirteen months and at the present time (March, 1929) there is no evidence of its diminution. The prevalence of the disease is such that the term "epidemic" can properly be applied to the situation. The first cases in 1928 were reported to the Department of Health in February. In March there were six cases with three deaths. More than double this number of cases was reported in each of the months of April, May and June. With the advent of hot weather the outbreak characteristically declined. Another flare-up was noticed in October when 32 cases and 24 deaths were recorded. In November there were 27 cases with 14 deaths and during the first two weeks of December there were 17 cases with 12 deaths. Table I shows the number of cases and deaths, by weeks, reported to the Department of Health during the period December 15, 1928, to March 9, 1929 — a total of 183 cases and 77 deaths. In addition there were 38 deaths from other forms of meningitis during this period. Since the termination of some of the cases of epidemic cerebrospinal fever is still unknown, a final analysis of them cannot be made at the present time. However, Mr. Darling of this Department has made a study of the first 100 cases in our closed files for 1929. The fatality rate in this series was 70 per cent. The white population contributed 72 per cent of the cases and the colored population 28 per cent. In view of the fact that the colored population is only about 8 per cent of the total, it appears that the negroes have

* From the Department of Health, Detroit, Michigan.

contributed more than their share of the disease. Of the 100 cases, 7 were among infants, 53 in children between 1 and 10 years old, 18 in the age-group 10–19, 12 in the group 20–29, and 10 among persons over 30 years old. Thus 60 per cent of the cases occurred among children under 10 years old. The disease has not been confined to the crowded sections of the city. Of the 100 cases studied 39 per cent were reported from single residences, 36 from flats and 8 from tenements.

TABLE I

EPIDEMIC MENINGITIS

Cases and deaths: December 15, 1928 to March 9, 1929

Week ending	12/15	12/22	12/29	1/5	1/12	1/19	1/26	2/2	2/9	2/16	2/23	3/2	3/9
Number of cases	2	8	4	13	21	11	12	14	18	19	18	19	24
Number of deaths	6	0	2	5	4	7	4	7	4	5	9	17	7

Total number of cases, 183 Total number of deaths, 77

Epidemic cerebrospinal fever is believed to be spread largely through carriers, either temporary or chronic. Therefore the only means available for control of the disease is by control of carriers. Early in February the Department of Health instituted an isolation of contact carriers. These individuals were detected by means of nasopharyngeal cultures from which meningococci were isolated. The cultures were taken by nurses from contacts in the homes of cases. The swabs were kept warm and brought to the laboratory as quickly as possible. They were streaked on blood agar and examined the following day for meningococcus colonies. If suspicious colonies were noted, agglutination tests were made with polyvalent antimeningococcic diagnostic serum. In all instances agglutination tests were made on the first suspicious culture before a positive result was reported. Readings from persons once positive were made from plate examination only, except when the laboratory worker was doubtful of the result, in which case agglutination tests were made. The laboratory work

was done by Catherine O. Wiltsie. Between February 6, 1929, and March 9, 1929, 285 contacts of 50 cases of epidemic meningitis were examined. The results are summarized in Table II. Of these 285 contacts 152, or 53.4 per cent, were found to be carriers of meningococci at one or more examinations. The total number of examinations made on the 285 contacts was 920. Of these 222, or 24.1 per cent, were positive for meningococci.

TABLE II

Study of Contact Carriers

No. of cases, 50. No. of contacts, 285. No. positive, 152. Percentage positive, 53.4

Total examinations, 920. No. positive, 222. Percentage positive, 24.2

Two consecutive negatives after 1 or more positive cultures, 31, or 20.4 per cent

Seven persons positive after two consecutive negative cultures

One person, − + − − (7 days) + + − −

According to the Department of Health regulations, a contact either must be isolated for 14 days or may be released after two consecutive negative cultures taken at least 24 hours apart. The result of this regulation has been that all the contacts that could be found were cultured with the hope of an early release. We have attempted to obtain some indication of the value of such a regulation — designed, of course, to prevent the mingling of carriers with supposedly normal individuals — by analyzing our data. Many of these contacts are still being cultured so that definite conclusions must be withheld. Of the 152 contact carriers only 31, or 20.4 per cent, have so far given two consecutive negative cultures after one or more positive cultures. In seven persons a positive culture was obtained after two consecutive negatives. It is not possible to say how often this would have happened if we could have cultured the whole group after two negative results were obtained. In one instance cultures were made 7 days after two consecutive negatives. Two positive followed by two negative results were obtained. The difficulties encountered in attempting to locate and isolate contact carriers are many, but we are inclined

to believe that the procedure is of some public health value. At the present time we are obtaining cultures from persons who have not been known to have been in contact with cases of epidemic meningitis. The results are not yet available in sufficient numbers to present.

TABLE III

GROUPING OF MENINGOCOCCI

26 case strains, agglutination
17 carrier strains, with polyvalent serum

	Case strains	Carrier strains
Group I	1	1
Group III	20	4
Group III?	2	5
No Group	3	7
Group I (partial)	17	4

Immunological studies have been made on strains of meningococci isolated from the spinal fluids of cases of cerebrospinal fever that have occurred during the present epidemic and on strains of the organisms isolated from contact carriers. We have been aided in this work by Norma H. Broom. To date, 26 case strains and 17 carrier strains have been studied. In some instances we have been able to obtain carrier strains corresponding to the cases. The organisms were isolated on blood agar plates, examined morphologically and tested with a polyvalent antimeningococcic diagnostic serum. With the exception of 5 carrier strains all were completely agglutinated in a 1-to-400 dilution of the serum. These 9 strains were only partially agglutinated at that dilution.

The next step was to test the organisms with the four specific group serums. Table III gives the results obtained. Twenty out of twenty-six case strains fell definitely in Group III, that is, they were completely or nearly completely agglutinated at the titre of the serum. Two others were partially agglutinated. One strain was definitely in Group I and three failed to agglutinate with any of the four serums. It is recognized that a close relationship exists between Group I and Group III meningococci. Seventeen of our case strains were partially agglutinated by Group I serum, but, with the exception of the one already noted, were not agglutinated

completely at a serum dilution corresponding to the titre of the serum. We believe, therefore, that the organism largely responsible for the present Detroit outbreak of epidemic meningitis is a Group III meningococcus.

The carrier strains did not give as clear-cut results as the case strains. There was a greater tendency for the organisms to agglutinate spontaneously although we could not detect any difference in colony appearance. Only 4 of the 17 strains were completely agglutinated by Group III serum. Five others probably belong in this group. One was definitely a Group I organism, while 7 strains failed to be agglutinated by any of the specific serums, although they were agglutinated by the polyvalent diagnostic serum. We have not yet encountered any organisms belonging to Groups II or IV.

The present recognized treatment for acute cases of epidemic cerebrospinal fever is by injection of therapeutic antiserum. These antiserums are prepared by the use of a variety of strains of meningococci; hence they are polyvalent. Their value consists, at least to a considerable extent, in their content of meningococcic antibodies. In the laboratory the antibodies known as agglutinins can be fairly readily detected. Whether or not these agglutinins are therapeutically active or whether their presence merely indicates the presence of other antibacterial substances which are the real therapeutic agents, cannot be discussed here. The only practical method for the laboratory testing of therapeutic serums is by means of the agglutination reaction. How far such tests correlate with curative properties can be ascertained only by the continual comparison of laboratory and clinical data. Recognizing that the agglutinative titre of an antiserum is not necessarily an accurate measure of therapeutic properties, we nevertheless thought it desirable to test a number of the commercial antimeningococcic serums with the organisms isolated in the present outbreak of cerebrospinal fever.

Table IV is a summary of the results obtained with strains isolated from the spinal fluids of acute cases. The serums are those obtainable on the market with the exception of number VI, which is experimental only. They represent both a variety of

manufacturers and different lots from the same manufacturer. The variety of results obtained is evident. In high dilutions some serums agglutinate a majority of the strains tested but others possess almost no agglutinative power. Tests made with serum dilutions lower than 1 to 100 are valueless, since normal horse serum will agglutinate many of our strains at dilutions under this point.

TABLE IV

AGGLUTINATION WITH THERAPEUTIC SERUMS: CASE STRAINS

Serum	Number of strains	Dilution			
		1–100	1–200	1–400	1–1000
I	25	–	23	22	21
II	13	4	3	1	0
III	13	8	6	6	0
IV	25	12	5	1	0
V	25	16	15	7	3
VI	22	–	–	–	20
VII	10	10	10	9	6
VIII	10	2	2	0	0

Table V shows the same tests made with carrier strains. In view of the difficulty encountered in agglutinating these strains with diagnostic antiserum, the small number of positive results obtained is not surprising.

We have attempted to identify certain carrier strains of meningococci with the corresponding case strains. This work is still incomplete and only preliminary results can be reported. Table VI gives the data so far obtained. Case strains are identified by a number, carrier strains by a name. That they are all meningococci is shown by the complete agglutination with diagnostic antiserum. The grouping is fairly but not entirely consistent. Still more deviation occurs in the agglutination tests against the therapeutic serums. It is evident that organisms isolated from carriers are different biologically from corresponding case strains. Further work is being done on this problem.

TABLE V

AGGLUTINATION WITH THERAPEUTIC SERUMS: CARRIER STRAINS

Serum	Number of strains	Dilution			
		1–100	1–200	1–400	1–1000
I	16	–	9	7	3
IV	16	3	0	0	0
V	16	5	3	3	0
VI	16	–	–	9	6
VII	15	2	2	2	1
VIII	15	2	0	1	0

TABLE VI

COMPARISON OF CASE AND CARRIER STRAINS

Strain	Polyvalent serum	Group	Therapeutic serums		
			I	IV	V
11708.....	4 +	III	1–1000	1–100	1–400
Mercier.....	4 +	0	1–1000	0	0
11667.....	4 +	III	1–1000	0	0
Prairie.....	4 +	III ?	1–400	0	0
11666.....	4 +	III ?	1–1000	0	0
Findlay.....	4 +	III	0	0	1–400
18229.....	4 +	III	1–1000	1–200	1–1000
18230.....	4 +	III ?	1–1000	0	0
Lurry.....	4 +	III	1–1000	1–100	1–400

SUMMARY

The 1928–29 outbreak of epidemic cerebrospinal fever in Detroit has been severe, as is shown by the fatality rate of about 70 per cent. Sixty per cent of the cases have been among children under 10 years old.

An attempt has been made to control the outbreak by isolation

of contact carriers. Over 50 per cent of contacts with cases are carriers. Twenty per cent of these have apparently cleared up within two weeks. It is not definitely known, however, how long the organisms may persist.

The outbreak has been caused by a Group III meningococcus; strains of this group have been found consistently in the spinal fluids of a majority of cases examined. More than half the carrier strains isolated also belong to Group III.

Organisms isolated during the epidemic have been tested against therapeutic serums with a great variation in results.

Corresponding carrier and case strains are being studied to determine their relationship.

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Detroit, Michigan

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